SHOUT
SHARE
IT

506.595
Pet. 61
4/6
506.595
29118
Smith.
13

STRAITS BRANCH
ROYAL ASIATIC SOCIETY

[No. 39]

JOURNAL

June, 1903

SMITHSONIAN INSTITUTION
NOV 20 1926
274558
NATIONAL MUSEUM

Agents of the Society

London: KEGAN PAUL, TRENCH, TRÜBNER & Co.

PRINTED AT THE AMERICAN MISSION PRESS SINGAPORE.

[No. 39]

JOURNAL

of the

Straits Branch

of the

Royal Asiatic Society

JUNE 1903

SINGAPORE:
PRINTED AT THE AMERICAN MISSION PRESS
1903

Table of Contents.

Council for 1903 v

Proceedings of the Annual General Meeting vi

Annual Report of the Council viii

Treasurer's Cash Account for 1902 ix

Notes on a Trip to Gunong Benom in Pahang, by *W. D. Barnes* 1

Notes on the Formation of Words in Malay and Cognate Languages, by *H. L. E. Luering* 19

The Sakai and Semang Languages in the Malay Peninsula and their relation to the Mon-Khmer Languages, by *P. W. Schmidt*, reviewed by *W. D. Barnes* ... 38

The Comparative Philology of the Sakai and Semang Dialects of the Malay Peninsula—A Review, by *C. O. Blagden* 47

The Contents of a Dyak Medicine Chest, by *Bishop Hose* 65

New Malay Orchids, by *H. N. Ridley* 71

Descriptions of New Genera and Species of Hymenoptera taken by Mr. Robert Shelford at Sarawak, Borneo, by *P. Cameron* 89

On a Collection of Coins from Malacca, by *R. Hanitsch* ... 183

Short Notes 203

THE

STRAITS BRANCH

OF THE

ROYAL ASIATIC SOCIETY.

COUNCIL FOR 1903.

The Right Rev. BISHOP HOSE, *President.*

Hon. W. R. COLLYER, *Vice-President for Singapore.*

Hon. C. W. KYNNERSLEY, *Vice-President for Penang*

H. N. RIDLEY, *Honorary Secretary.*

DR. HANITSCH, *Honorary Treasurer.*

H. ESCHKE, Esq.,
A. KNIGHT, Esq.,
W. G. ST. CLAIR, Esq.,
A. W. O'SULLIVAN, Esq.,
Ven. Archdeacon DUNKERLEY
} *Councillors*

PROCEEDINGS

of the

Annual General Meeting

The Annual General Meeting of the Society was held on January, 23rd 1903.

There were present:—Right Reverend BISHOP HOSE, Hon'ble W. R. COLLYER, Dr. HANITSCH, A. KNIGHT, H. ESCHKE, A. D. MACHADO, Ven. Archdeacon DUNKERLEY,. W. G. ST. CLAIR, J. A. ROBERTS, Esq., Dr. GALLOWAY, H. NS RIDLEY.

The minutes of the last Annual General meeting were read and confirmed.

The Annual Report of the Council and the Treasurer's report were laid on the table and their adoption moved by W. G. St. CLAIR seconded by Dr. GALLOWAY, subject to the auditing of the Accounts which was undertaken by Mr. KNIGHT, as proposed by the Ven. Archdeacon DUNKERLEY and seconded by H. ESCHKE.

The Secretary read the draft of a letter of congratulation to the China Branch of the Royal Asiatic Society which was adopted unanimously by the meeting.

The Council for the ensuing year was then elected, viz.:

President: Right Reverend BISHOP HOSE.

Vice President for Singapore: Hon. W. R. COLLYER.

Vice President for Penang: Hon. C. W. KYNNERSLEY.

Hon. Secretary: H. N. RIDLEY.

Hon. Treasurer: Dr. HANITSCH.

Councillors: W. G. St. CLAIR, Esq., A. W. O'SULLIVAN, Esq. Ven. Archdeacon DANKERLEY.

The President then proposed a vote of thanks to the Secretary and Treasurer which was carried unanimously.

Annual Report for 1902.

The Council are gratified to report that the financial condition of the Society continues to be very satisfactory.

The following new members have been elected since the last Annual General Meeting:—

Rev. E. Gomes.	Mr. H. E. Byrne.
Mr. H. Walter Bourke.	Mr. J. W. Simmons.
Mr. H. Marriott.	Mr. G. Laws.
Dr. Gimlette.	Mr. F. J. Skertchley.
Mr. E. C. H. Wolff.	Mr. W. D. Grandjean.
Mr. C. Curtis.	Mr. D. Beattie.

Dr. Galloway.

Two numbers of the Journal, Nos. 37 and 38, were published during the year. The supply of material for publication, however, was as observed in the last Annual Report, still scanty, and it is hoped that members who have any opportunity of sending in notes or observations on the subjects in which the Society is interested will do so.

The Council regret to have to record the death of a member, Mr. J. P. Joaquim, F. R. G. S.

A number of books, papers and journals were added to the library. The Librarian is re-arranging the library and hopes to have a catalogue of it ready shortly.

The Treasurer's account is appended.

HONORARY TREASURER'S ACCOUNT FOR THE YEAR 1902

	$	c.	$	c.
Balances brought forward from 1901:—				
Mercantile Bank, Fixed Deposits	1553	41		
Mercantile Bank, Current Account	1000	77		
Chartered Bank, Current Account	58	95		
Cash in Hand ...	6	..		
			2619	13
Receipts in 1902:—				
Subscriptions for 1900 ...	5	...		
do „ 1901 ...	45	..		
do „ 1902 ..	470	...		
do „ 1903 ...	10	...		
do for Life Membership	50	..		
Sale of Journals and Publications	214	95		
Sale of Maps	996	85		
Sundry Recoveries ...	9	04		
Bank Interest	81	84	1882	68
			4501	81

	$	c.	$	c.
Payments in 1902:—				
Printing of Journal No. 37	238	25		
do do No. 38	224	15		
Thacker & Spink, for two plates for Journal No. 39	73	93		
Photographs of Coins for Journal No. 39 ...	10	...		
Mounting Maps ...	62	...		
Binding Books ...	56	05		
Clerk's Salary ...	60	...		
Collector's Fee ...	10	...		
Postage, Discount on Foreign Notes and Petties ...	64	03		
			798	41
Balances carried forward:—				
Mercantile Bank, Fixed Deposits	2595	54		
Chartered Bank, Fixed Deposits	700	81		
Mercantile Bank, Current Account	348	10		
Chartered Bank, Current Account	58	95	3703	40
			4501	81

A. KNIGHT,
Hon. Auditor.

R. HANITSCH,
Honorary Treasurer, Straits Branch, Royal Asiatic Society.

Notes on a trip to Gunong Benom in Pahang.

By W. D. Barnes.

Gunong Benom is the name usually given to the "massif" which lies in Ulu Pahang in the centre of the triangle the western side of which is formed by the Pahang Trunk Road running from Tranum through Tras and Raub to Kuala Lipis, the Eastern by the Jelai and Pahang rivers running from Kwala Lipis to Kwala Semantan, and the southern by the Tranum-Bentong road and the Bentong and Semantan rivers which latter river joins the Pahang at Kwala Semantan. The name Benom is used by the Malays on the Pahang river but seems unknown at Raub. The mountain is a very conspicuous object from the Raub Rest House. Its height has been fixed trigonometrically by observations from the Perak and Selangor borders at about 6800 feet.

In July 1900 an experienced mandore Che Musa was sent from Perak by Mr. Young, the present head of the F. M. S. Trigonometrical Survey to erect trigonometrical beacons at this and other points in Pahang. Difficulties having arisen I, in the middle of August undertook the work on Benom. Che Musa was then in Raub having reached what he took to be the top of the mountain and done some clearing there. He had returned for supplies but was unable to get any men to go back with him. With the assistance of Mr. Mason the Asst. District Officer at Raub I managed to collect 17 men on a promise of wages at 70 cents a day and food. The food I had the least hesitation in promising as I knew by experience that a Malay who goes into the jungle on board-wages invariably runs out of stores and has to return for more at the precise moment when work is most pressing and disagreeable. With these men Che Musa went back. On the 29th of August he met me again at Raub and reported that he had built a camp two days

march towards the Mountain and had carried to it half of the trigonometrical beacon and eight tins of rice. I had had all the rice soldered down in clean kerosine tins. The plan answered admirably. Each rice-coolie made a frame work like that of a knapsack on which to lash the tins and fitted it with straps of bark through which to pass his arms and carried in this way five and a half gantangs of rice (roughly the contents of a tin) rode comfortably, no time was wasted in packing and opening bundles, and most important of all—the rice kept perfectly without any of the usual trouble in preserving it from wet.

I was now ready to start and on arranging for my party found that the beacon (it was made of iron) needed a total of 22 men to carry it; more men were of course needed to carry rice for the beacon-carriers; I was very anxious to take sufficient food to last the whole party until the station had been cleared and the beacon fixed. I engaged therefore 32 coolies, all were Malays and but one or two were foreign Malays—Kelantan and Tringganu men. As they assured me that the mountain was infested with peculiarly vicious 'hantu' I engaged a 'pawang' one Wan Putih. He was recommended to me as a powerful exorcist who feared no 'hantu' whatever. In fact he was I was told perhaps a little too rough in the way he dealt with them. The 'pawang' whem Che Musa had taken with him had proved a hopeless failure. My five boatmen also went with me as well as a Malay boy and a Chinese cook. Che Musa completed a party of 42.

We left Raub on the 31st and stopped the night at Wan Putih's house in Ulu Gali. This though only two or three hours' walk from Raub was the last kampong on the way to the Gunong and to it the other half of the beacon had previously been brought. The afternoon was spent in getting packs, etc., all ready for an early start the next morning. I passed the night under a waterproof sheet; most of the men were accommodated by Wan Putih whose house was, if anything, even filthier than the usual Malay house.

Next morning one man was sick with fever and had to be left behind. Two others were engaged in his place and the whole party with half a trigonometrical beacon, a theodolite,

a load of botanical drying paper, my kit and bedding, rice and salt fish for the men and flour and fowls for me started off in good time. The first half of the day's march was easy, the rest up Bukit Numbih and down the other side was hard work for men carrying very inconveniently shaped pieces of angle iron. We camped on a tributary of the Klui which is a tributary of the Dong. The camp was at an elevation of about 1800 feet. Next day Che Musa with one man went back to Raub for more rice and food stores with instructions to hire men to bring them to Wan Putih's. The rest of us went on to the camp which Che Musa had previously made. Here we found a good 'pondok' and the 8 tins of rice and half the beacon. This camp was on another tributary of the Klui and also about 1800 feet high. The march was a short one. The day after I sent back 19 men to Wan Putih's to bring on the additional stores for which Che Musa had gone together with the balance of the beacon tools and with the rest of the men I went on to the foot of the Gunong, crossing Bukit Palas on the way. We stopped for the night at a point a little over 3100 feet high and as this was (so Che Musa had told me) the last place on the way up where water could be got and as the weather was distinctly unsettled (it had rained every day since we started) I set the men to work to build a good shelter.

On the third day ten men went back to the previous camp to bring on rice, whilst I went to Che Musa's clearing at the presumed top of the Gunong. To my surprise I found it to be only about 5000 feet high instead of 6800 as it should have been. As however the clearing was small and faced Raub it was impossible to make out the exact position. Next day I went up again with all the coolies left and started clearing and building a camp, and on the 7th it became obvious that the hill which Che Musa had thought to to the Gunong itself was really a subordinate one three miles away and separated from it by at least five deep valleys. After some consideration I decided to fix the beacon where I was. Looking for the true Gunong with a party of 40 men to feed was obviously out of the question and as the hill on which I was commanded a view of a large number of the main range trigonometrical stations and also much of the Gali and Dong Valleys invisible from the

highest point I decided that a beacon on it would at all events give some return for the expense incurred.

On the 8th Che Musa reached the top and by the 11th nearly all the beacon had arrived enabling me to send ten of my party back to Raub there to be paid off. Nearly all of them were sick with fever or otherwise useless for clearing and filling and and I was very glad to have fewer men to feed. On the 14th the beacon was erected and on the 15th finally placed in position. By this time food was running short for all hands, and the coolies had got very tired of their job. Three had left without permission thereby forfeiting the greater part of their pay and on the afternoon of the 16th all the rest struck works The average foreign Malay who comes to Raub to look for work is not a pleasant person with whom to deal, and if he hail. from Tringganu as did most of my men did, his respect for a contract is very precisely measured by the ability of the other party to improve it. Luckily I was a Government officer and although my powers were not perhaps quite so extensive as I represented them to be, I succeeded in sufficiently impressing the men to induce them to go to work again late the next morning. I must own that I to some extent sympathised with them. Their work was pretty hard and their food had come down to rice and salt only. Fish sufficient for twice their number they had finished entirely. (My sympathies were sharpened by the fact that my own diet had fallen to bread and condensed milk.) When on the 18th the salt also gave out I found that I ran a risk of being left alone with my boatmen and a good deal more kit than they could carry. On the 20th therefore I started down although two very large trees up which a ladder had been contrived still stood on the side towards the Gunong. These are only noticeable from the Raub Rest House, whither late on the afternoon of the 21st I arrived, the return journey being done in two days.

During the whole time between the 7th and the 20th the coolies were felling I was taking a round of theodolite angles and sketching the outlines of the hills in sight. The seeing was rarely good especially towards the north-west and south and trignometrical stations more than 25 miles away could not have been pitched up without the aid of the powerful telescope which

I had fortunately borrowed from the Selangor Survey Office. In clear weather the view was very fine. The hill sloped steeply on all sides except towards the Gunong and seemed to rise out of a level plain. On the north in the dim distance above the spurs of the 'massif' were Gunong Tahan and another noticeable peak since identified at Sinting. On the west the main range ran from Perak down to Jelebu with foot hills below it. and a narrow plain leading from Raub southward to the Bentong and Semantan cut up with long ridges of hills separating the various streams. At the foot of the Gunong were the white limestone cliffs of Gunong Serdam with the Gali plain beyond and Raub with the iron-roofed mine buildings sharply picked out and the cable-track showing like a long angled trench. I managed twice to get bearings of Tahan and to sketch the range of which it forms part. The beacon which I erected stands on the highest of these small peaks of about equal height and the clearing round it measures quite five acres.

The weather was fair only. There was a good deal of rain and on more than one day I never got a single sight. The sun when it shone was very hot and I found that working the theodolite under it meant considerable loss of cuticle from the nose and face. At 8 p.m. the temperature was about 69° and at 6 a.m. 62°. The Malays complained a good deal of the cold although I had provided every man with a blanket. Many of them suffered from chapped lips. My Chinese cook in a blue serge Norfolk suit worn over all his other clothes looked a quaint sight. He never complained however and baked most excellent bread in an empty kerosine tin. A great difficulty was water supply. Every day a water party of five men had to be sent to the last camp nearly 2000 feet down and as the climb was steep and the men out of sight that water party did very little or no other work. Bathing was of course out of the question and washing had frequently to be foregone.

The 'pawang' was a great nuisance. Naturally he did no work himself and I suppose equally naturally he was of no use at all when the men went on strike. He was one of the most self-righteous natives whom I ever met and though quite illiterate fully equalled many a Koran-quoting haji in conceit. As a 'pawang' he did little except to 'Jampi' a man who was bitten

on the foot by a snake on the hill-top. This poor fellow's leg swelled up badly and as he was an oldish man and got high fever I began to be nervous about him. However either the charms or my remedies brought him round and in a few days he could walk again. Occasionally the 'pawang' thought fit to give us a taste of his quality and usually at inconvenient times. At the camp at the foot of the Gunong we heard every night a continuous shrill yelping as of baskets of puppies deserted by their mothers. It was, I think, made by birds though the Malays could give me no name for them. When I asked the 'pawang' he looked mysterious and suggested that the subject should be changed. One night this yelping was very persistent several 'riang-riang' were screeching in the trees, a wind having sprung up the jungle seemed full of noises. I fell asleep but was awakened near midnight by a loud harangue from the 'pawang' to the "hantu" of the Gunong. He began mildly by asking why they made such a disturbance; had they forgotten the propitiatory service he had paid before the first tree was felled? Was it fair to go back on him like this? For a while the noise died down and I heard the men expressing their sense of the 'pawang's' power over the spirits. Soon after however it began again and the pawang after more unavailing discourse lost his temper and scolded the hantu in very unmeasured language indeed. This frightened the men and they kept up a chorus of "Biar-lah," "Jangan-lah," "Nanti dia marah" until finally the pawang was reluctantly pacified and left the hantu alone.

Then they all began to tell ghost stories. One I remember about Bukit Hitam which is full of getah-taban but on which no getah hantu dare collect owing to the tigers which guard the mountain. One man said that his uncle (a particularly brave man) started once with a large party and as a protection kept a ring of fire round the camp at night. Before morning however a tiger sprang through the flames and carried off the leader. This superstition about Bukit Hitam seems only general. I have heard it both sides of the main ridge. The commonest story about high mountains seems to be that they are inhabited by 'beroh' (*macacus nemestrinus*) who increase in size and ferocity the higher the adventurous traveller mounts until at last

they become as lazy as buffaloes. At this point the traveller always returns believing that they would be as large as elephants further on. On Gunong Raja by-the-by there are chili plants sufficiently gigantic to allow these big 'brok' to perch on their branches.

The Malay belief in 'hantu' is of course universal but is noticeable that it is always possible to find some one whether a pawang or otherwise who will have them for a consideration. A charming old Chinese thauke at Belat in Kuantan tells a story of how he offered $5 to some Malays to fell a large chingah tree which overhung his kongsi. They refused and said that it was a "datoh." Subsequently they offered to fell it for $10. The thauke's indignant reply was that he would have nothing to do with men who would cut down their grandfather for ten dollars. Why for fifteen you would cut down your father and mother as well! He got over the difficulty by the aid of a large auger half a tin of kerosine and a lighted match. After describing how in a day or two the tree fell its heart completely burnt out, he always ends by saying very scornfully "Mana hantu?" As a rule however a Chinaman believes in propitiating the local unseen powers and even this sceptical thauke was seriously considering whether he could not change his luck by engaging a pawang to pay the belated sacrifice of a buffalo to the genius loci of his mine. A Chinaman is perhaps somewhat of a fatalist but he believes in insurance all the same.

Another susperstition which I overheard concerned a cure for skin disease. The pawang was complaining that it was difficult to arrange the marriage of a girl who lived near his house as the poor thing was covered with "kurap." My head-boatman who had noticed the girl, displayed great interest (he was I think contemplating matrimony à bonne marché) and stated that he knew an infallible cure for "kurap." It consisted in an ointment of sulphur and kerosine oil applied in some mysterious manner and it was an essential part of the cure that no living soul should see the patient for seven days after the unction.

As regards the fauna of the hill, over the very top of the ridge, i.e., 5000 feet high ran a beast-track and on almost the highest point was a quantity of rhinoceros' dung. One night whilst

we were on the top an elephant came along this track but was turned back by the fallen trees. It is easy to understand that aborigines walk for choice along the ridges and hills in order to avoid the dense undergrowth in the valleys but why beasts whose weight is calculated in tons should voluntarily carry that weight up hills of really considerable steepness in not so obvious. Do they go along the ridge in order to avoid the sidelong ground of the slopes much of which would give an insecurer foot hold? In the present case the track seemed to run towards the Gunong itself nearly 2000 feet higher. On the lower ground we saw many tracks of sladang and elephant and heard elephants more than once. Animal life seemed scarce on the hill top. A snake—mutilated beyond recognition before I saw it—was found, also a wood louse and a scorpion. Small bees (lebah) however abounded as on all hill-clearings and crawled persistently over one's face and hands. Flies too appeared very quickly and in large numbers. They were in colour a dark metallic blue and in size between a housefly and a blue-bottle. They laid masses of longish white eggs on blankets not actually exposed to bright sunlight. There were also a few white woolly-looking flies of about the same size. None of these insects lived apparently on the spot. They all seemed to appear after the clearing was begun. Whence they came I cannot say. I also saw a few butterflies.

With the aid of a supply of botanical drying paper lent by Mr. Ridley, the Director of the Botanical Gardens, Singapore, I made a large and, I think, fairly complete collection of all trees, shrubs and plants which were at the time in fruit or flower. Mr. Ridley informs me that the collection reached him in good order and he has made out the appended catalogue raisonné of it. It is in fact as an introduction to this catalogue that these notes have been written. From the nature of the moss upon the hill I should imagine that Benom is much drier than the hill tops on the main range. The commonest trees were "pagar anak" bintangor, kĕlat, rengas manak, mempassi, membungit and palâwan, at least those were the names of them given to me by the coolies. The "rengas manak" was not I was told poisonous. My Chinese cook however broke out with a bad eruption on his nose and face probably caused by "rengas" sap and on the night

before we started down one of the coolies was very badly stung on the body—so badly indeed that he got high fever and could carry nothing and almost had to be carried himself. I saw him about a week later and the eruption was still visible on his chest. Either therefore rengas proper existed on the hill or else "rengas manak" is not harmless.

The palawan trees were a great nuisance. The wood was so hard that the bliong's in the hands of the less expert coolies were badly gapped and I was obliged to order that one exceptionally good man should tackle them all. The tree seemed to me exactly like the palawan so common on river banks.

On the very top of the hill there was a good deal of "chandan" which Mr. Ridley has identified in a paper recently published in the Journal.

Throughout the whole trip I saw no getah, taban, chinga, merbau, petaling, or other valuable timber. On the lowest slopes of the hill there were however many fine "seraia" trees. The whole of the specimens identified by Mr. Ridley were collected on the top of the hill at a height of almost exactly 5000 feet.

The Benom "massif" consists of granite and I noticed that the sedimentary rocks were left behind very soon after leaving the low ground along the foot of the main range; they are found much higher up and in some places places higher than 1000 feet above sea level. Benom is an isolated granite intrusion without visible igneous connection with the main-range. In the long plain running southward from Raub the ridges which divide the Klan Bilut and Bentong are from their appearance of sedimentary rock. One of them Gunong Raca which overlooks Bentong township is of course conglomerate. This conglomerate is seen also at Jeram Kapur below Bentong. The pebbles in it are as far as I could see, not of igneous rocks but of quartzite and silicified slate. Its strike is a few points West of North and East of South and its dip (apparently) very steep. Similar conglomerates occur in the Ulu Jelai. The metamorphic limestone cliffs off Serdam at the foot of Benom seem identical in composition with those at Bukit Chintamani on the Bentong river and indeed with all the other limestones scattered, mostly in isolated cliffs throughout the Peninsula. In the Jelai river

this limestone has recently been shown to reach to a depth of over 900 feet below the present surface. The height at which the old sedimentary rocks remain on the east side of the main range as compared with the west is very noticeable when crossing the range by the Pahang Trunk Road. Further I have walked along the foot of the range the whole way from Tramun southward to the Triang (a tributary of the Pahang which rises in Jelebu) and have not only seen no granite but have found the pebbles in the streams to be mostly of sedimentary rarely of igneous rocks. The rocks over which I passed were all sedimentaries. The bed rock of the Bentong alluvial flat where the mines are worked is uniformly not a bed of china clay as is usual on the western side of the Peninsula but a denuded surface of slates on edge.

I was unable to ascertain the name of the hill on which the beacon is placed. It is certainly not Bukit Palas as I passed over Bukit Palas on my way to it. It may possibly be Kluang Terbang. At places however like Raub where no native seems to go into the more inaccessible jungle, local names are very uncertain.

If another attempt is made to fix a station on Benom I would strongly advise that another route be chosen. At Raub labour is very expensive and natives with any idea of local topography are nonexistent. Sakais there are none. Personally if I were to try again I should begin by making enquiries as to routes up the Dong or by the Krau, a tributary of the Jelai on the other side of the 'massif.'

List of Plants Collected.

Illicium evenium, King. Also occurs in Malacca, Selangor and Perak.

Polygala venenosa, Juss. var. This is the same plant as that collected by Wray on Gunong Bubu (No. 3813) and distributed under this name by King and is probably the var *gracilis* of Miquel. It is very unlike the ordinary form of the Penang and Perak hills, having a long terminal spike of flowers and not short axillary ones.

Garcinia, sp. In young fruit, branches grey corky, leaves lanceolate acuminate coriaceous 2 inches long and one and a half broad, petiole half an inch long axillary or supra-axillary few-flowered petals small, stigma discoid grooved. I have never seen this plant from elsewhere.

Calophyllum sp. Of this genus there are two species represented; one is perhaps a form of *C. retusum* the other has oblong blunt leaves. None of the specimens have flowers or fruits, but all have the curious bud-galls common to other species of the genus.

Anneslea crassipes, Hook. A big tree; specimens with very large fruit; occurs on Mt. Ophir.

Adinandra maculosa, Anders. A variety with smaller leaves than usual and glabrous fruit quite ripe.

Ternstroemia Scortechinii, King. Also occurs in Perak.

Gordonia imbricata, King. A rare plant once collected by Scortechini, in Perak.

Ternstræmiacea, a very striking plant apparently belonging to the same order but in fruit only was obtained by Mr. Barnes. It is a tree or shrub with dark colored branches, and coriaceous ovate lanceolate leaves with blunt points 1 inch to $1\frac{1}{2}$ long $2\frac{1}{4}$ to $\frac{3}{4}$ inch wide with numerous close nerves and reticulations on the under surface. The upper surface is smooth dark green the under surface yellow when dry and the young leaves are red. The racemes are axillary about one inch long with about ten flowers. The fruit is a capsule on a very short pedicel. With a small rounded bract. The sepals are orbicular imbricate 4 in number, coriaceous with a scarious margin fringed with white hairs, and with three elevated ribs in the centre about $\frac{1}{8}$ inch long. The capule $\frac{1}{4}$ inch long splitting into 4 acute lobes on one of which persists the fairly stout style with an obscurely lobed stigma. There is a persistent column in the centre. The seeds are linear curved not winged two in each cell.

The flowers have not been obtained, and consequently it is difficult to refer this with any certainty to

any genus. If as it appears it belongs to the order Ternstrœmiaceæ, it seems most nearly allied to *Pentaphylax* of China.

Pachynocarpus Stapfianus, King. Leaves elliptic shortly acuminate blunt base slightly acuminate 6 inches long 3 wide smooth with 6 pairs of nerves depressed above dark brown above, beneath grey with prominent nerves. and reticulations, petiole stout ½ inch long rugose, Panicles crowded compact short red scurfy. Bracts lanceolate scurfy ⅛ inch long. Flowers crowded less than ¼ inch long red scurfy, calyx and lobes lanceolate obtuse. Petals linear oblong scurfy. Stamens short ovate apiculate. Fruit solitary globose on a stout thickened pedicel, a little over ½ inch long, brown rugose, calyx lobes shorter than the whole fruit projecting as short triangular processes.

This tree was only known from a specimen collected by Scortechini, in fruit. It is very satisfactory to have also the flowers.

Elaeocarpus robustus, Roxb.

Bauhinia cornifolia, Bak. Flowers red.

Bucklandia populnea, R. Br. In flower. The leaves in the specimens are not tricuspid but ovate with three prominent nerves and coriaceous. The petioles and nerves on the back hairy or glabrescent, buds ferruginous hairy, the bracts are narrow as in Miquel's figure, in the Flora of Sumatra.

Weinmannia Blumei, Planch. In flower and fruit occurs on all the higher hills. Mt. Ophir, Perak.

Polyosma loete-virens, Griff.

Carallia multiflora, Miq. From description I take this plant to be Miquel's species collected once in Java by Harfield, the exact locality unknown.

Rhodamnia trinervia Bl.

Tristania meryuensis, Griff. Very characteristic of our higher

hills. The wood according to Mr. Barnes is exceedingly hard and broke the edges of the axes in felling.

Eugenia sp. Leaves very narrow lanceolate with a very long narrow point blunt, coriaceous dotted above, pale beneath one inch long, $\frac{1}{4}$ inch wide fruit in short axillary and terminal racemes $\frac{1}{4}$ inch long, small tessellate $\frac{1}{8}$ inch long.

E. subdecussata, Wall.

Anerincleistus macranthus, King.

Medinilla Clarkei, King.

Begonia Herveyana, King. Rhizome stout often rather long creeping. Leaves when young pink adult dark green, petiole over a foot long, blade ovate acute hardly in equilateral base rounded 6 inches long and 5 wide glabrous. Scape six inches long, lengthening in fruit, male flowers numerous about half an inch across, white outer sepals ovate rounded, inner ones narrower, stamens numerous anthers elliptic blunt not apiculate. Fruit fleshy 3-winged, one wing much larger than the other curved obtuse thick $\frac{3}{4}$ inch long, the others much shorter, deluscing along the base of the wing.

Besides this locality, it has been met with in Pulau Tinggi (Feilding) in Jeram Nyalas (Malacca) by Derry (No. 1130) and in Bukit Sulu (Negri Sembilan). It is called *assam susu* by the Malays.

Argostemma parvifolium, Bemi.

A. hirtum, Ridl. also occurs on Mt. Ophir.

Lucenæa sp. Evidently near *L. pentacme* of Stapf from Kinabalu, resembling it in the white bark of the stem and almost nerveless leaves but the peduncle of the head is longer and the bracts at the base are not connate in a cupule as in that species. The only species recorded from the peninsula is *L. Morindæ*, Jack. which is common in Singapore. This species is evidently undes-

cribed but as Sir George King is at present at work on the *Rubiaceæ* and probably has already seen it, I do not give it a name.

Timonius Tambosella, Tha.

Cephaelis cuneata var. debilis. A more slender plant than the usual form with smaller narrow lanceolate acuminate leaves 3 to 4 inches long and one inch wide or less, petiole $\frac{1}{2}$ to 1 inch long. In fruit this seems to be a weak form of this species of which the common form often occurs high upon our hills.

Lasianthus sp. With lanceolate acuminate leaves strongly reticulate beneath nerves, petioles, and twigs hairy.

Ardisia villosa, Roxb.

A. oxyphylla, Wall. A variety with smaller oblong to oblanceolate leaves.

Linociera lancifolia, nsp. Branches pale, leaves opposite lanceolate acuminate, base cuneate 2 to 3 inches long $\frac{1}{2}$ to 1 in. wide smooth, thinly coriaceous nerves inconspicuous on the upper surface, midrib elevated beneath, nerves alternate ten on the lower surface. Panicles small an inch long with a pair of broad oblong bracts $\frac{1}{4}$ inch long at the base. Flowers $\frac{1}{8}$ inch long umbellate on the ends of the branches, pedicels $\frac{1}{8}$ inch long, calyx lobes short ovate puberulous, corolla tube very short lobes linear obtuse from a broad base keeled glabrous. Stamens 2 short broad. Style thick shorter than stamens. Drupe cylindric acute.

Alyxia pumila, Hook fil. A form with larger leaves and fruits than usual. Calyx lobes puberulous.

Dischidia coccinea, Griff.

Hoya sp. near *H. parasitica*, but with much smaller thinner flowers. I have it also from Gunong Hijau in Perak.

Vaccinium bancanum, Miq. A variety with small leaves and fruits.

V. Teysmanni, Miq. var. with branches and petioles and base in midrib beneath covered with black hairs. According to the description the typical form is glabrous. I have obtained it also on Maxwell's Hill, Perak, where it was epiphytic and had pink flowers.

Rhododendron Malayanum, Jack.

Diplycosia urceolata, Stapf, var. This differs only from the plant described from Kinabalu in the leaves being ovate lanceolate and rather larger as much as 4 inches long by two wide, instead of obovate. The form of the leaves however seems rather variable. I have also met with it on Bukit Kutu and Bukit Hitam in Selangor. *D. macrophylla* of Beccari a native of Borneo is as far as description goes similar except in the leaves which more resemble those of the Peninsula plant.

D. lancifolia, nsp. Shrub with rather slender branches with whitish bark upper part setulose, leaves coriaceous lanceolate to ovate lanceolate acuminate, base narrowed to the petiole shining green above. Midrib and two side nerves depressed visible, beneath paler dotted midrib only visible raised, 1½ inch long ¼ to ½ inch wide. Flowers solitary axillary on slender pedicels nearly half an inch long with red setulose bristles. Bracts 2 short ovate pubescent. Calyx campanulate narrowed at the base lobes ovate acute with red hairs, ¼ inch long. Corolla longer glabrous. Stamens with long points opening by two pores yellow. Style rather long slender.

D. consobrina, Becc. A specimen collected by Mr. Barnes resembles the description of this Bornean plant.

Gaertnera Koenigii, Wight.

Aeschynanthus Hildebrandtii, Hook fil. Also occurs in Perak.

Ae sp., possibly a variety of this but with ovate acute leaves, and a bigger plant than I have seen of the species. The specimen is in fruit.

Didymocarpus near *albomarginatus*, Hemsl., but with leaves narrower at the base, in very young bud only.

Clerodendron deflexum, Wall. It is not usual to get this common low country plant at such an elevation.

Nepenthes sanguinea, Lindl.

N. gracilis, Korth.

Litsea sp. A narrow leaved species near *lancifolia* but glabrous; in fruit.

Micropora Curtisii, Hook fil.

Wikstræmia candolleana, Meisn. The Chandan of Pahang. This species is not recorded for our flora in the Flora of British India, but occurs on Gunong Hijau, Kedah Peak, and also at Kamposa in Kelantan. It is a shrub or small tree about 6 to 10 feet tall with smaller flowers than those of *W. indica.*

Loranthus evenius, Bl. This beautiful red flowered mistletoe occurs also in Singapore and in Perak.

L. tetragonus, Bl. New to the Peninsula.

Henslowia buxifolia, Bl. Not rare on our hills.

H. sp., near *Lobbiana.* Leaves ovate orbicular 2 inches long by one wide tapering into the petiole which is $\frac{1}{4}$ inch long, nerves five faintly visible on the under surface. Fruits two or three together axillary on pedicels half an inch long, oblong light brown $\frac{1}{2}$ an inch long, crowned by five short connivent calyx teeth; obscurely five grooved. This is remarkable for the large size and shape of the fruit. I have not seen it elsewhere.

Balanophora multibrachiata, Jungh. Also occurs on Mount Ophir.

Ficus diversifolia, Bl. A form with elliptic oblong leaves and small pedicelled figs.

F. fulva, Reinwaldt.

Quercus Rassa, Miq.

Podocarpus cupressinus, Bl.

Burmannia longifolia, Becc.

Dendrobium sinuatum, Lindl.

D. bifarium, Lindl.

D. Kelsalli, Ridl.

D. macropodum, Hook fil.

D. hymenopterum, Hook fil.

D. cornutum, Hook fil. A rare plant with good sized pink flowers originally collected by Wray in Perak.

Bulbophyllum capitatum, Lindl.

B. catenarium, Ridl.

B. montigenum, Ridl. Also on Kinabalu.

Eria vestita, Lindl.

E. æridostachya, Rchb. fil.

E. bidens, Ridl.

E. longifolia, Hook fil.

E. Scortechinii, Hook fil.

Ceratostylis clathrata, Hook fil.

Dendrochilum angustifolium, Ridl. nsp. Occurs also on Bukit Hitam, Selangor.

D. sp. in fruit only.

Coelogyne tomentosa, Lindl.

C. sulphurea, Rchbf.

C. carnea, Hook fil. This plant occurs in Perak also there is a figure of it in the Icones Plantarum which however represents the petals as fine as and very much broader than they actually are, so that the plant is nearly unrecognizable. I have however a specimen from Scortechini's collection distributed as typical *C. carnea* and a good pencil drawing by Scortechini showing the very narrow petals and labelled *C. carnea* by Hooker. The flowers are neither fleshy nor flesh-colored as the name would imply but rather thin textured even for a *cœlogyne* and brown and yellow.

Pholidota gibbosa, De Vr. This Javanese plant has not previously been recorded for the peninsula. It seems to be very closely allied to *P. carnea*, chiefly differing in the broad three-nerved petals.

Calanthe augustifolia, Lindl. This pretty white *Calanthe* grows on all our high hills.

Saccolabium bigibbum, Hook fil.

Corysanthes picta, Bl.

Smilax calophylla, Wall.

FERNS.

Humata pedata, Sm.

Lindsaya scandens, Hook.

Hymenophyllum Neesii, Hook.

Hymenophyllum polyanthos, Sw.

Polypodium cucullatum, Nees.

Pleopeltis Wrayi, Baker.

Elaphoglossum latifolium, Sw.

Vittaria falcata, Kze.

Also an *Alsophila* without fruit.

Selaginella chrysorhiza, Spring ?

The two typical hill Mosses *Pogonatum macrophyllum* and *Hypnodendron arborescens* also occurred in the collection.

H. N. Ridley.

Notes on the Formation of Words in Malay and Cognate Languages.

H. L. E. Luering, ph. d. (Strassburg).

Unlike the great majority of the better known Oriental languages the vernaculars of the Malayan family have not yet revealed the history of their growth and development. The Semitic, Persian, Indian and Chinese languages have not only preserved very early monuments of literature, which serve as infallible guides to the student, but we can follow their growth from step to step, from antiquity to the present day, without missing, as it were, a single foot-print in all the long journey. In this search for light on the origin and the roots of the language numerous sister-tongues have liberally added their testimony. Arabic literature and living speech step in where Hebrew tradition leaves a breach, and both supplement, and are supplemented by, each other and the Semitic varieties of cuneiform and other inscriptions. So it is also with Sanskrit, ancient Persian and the language of the Zendavesta. I remember very well the time, when owing to the lack of a Persian or Zend Dictionary I had to prepare my lessons in the Avesta and in the inscriptions of Bisûtûn with the help of a Sanskrit Dictionary. This will, at least, show the great benefit philologically derived from a comparison of cognate languages, even where the modes of writing and the alphabets are radically different.

In Chinese philology we have not only a literature going back—indirectly if not directly—to great antiquity, but we have also a record of the ancient sounds and signs used at an early date. These together with the comparison of numerous idioms and dialects, enable us to assign what at first appears as a motley of heterogeneous languages to their legitimate mother.

In the Malayan family of languages we have no ancient monuments of literature, but we have a large variety of tongues, which may all be pressed into service to shed their scant light upon the history of the language. I call their contribut-

ion scant because the historic element is almost entirely wanting. We have as yet no data as to the time of division of the various branches of this family, though some writers have settled this question to their satisfaction by intuition, without, however, convincing the careful enquirer. Nevertheless the comparison of Malayan languages will lead us a considerable distance towards the solution of the problem of the proto-malayan language. Nor will this task be a very difficult one after the necessary materials for such a work have once been collected.

In the present paper we will attempt to study, in some of its phases, a more difficult subject, not the original form of words but the formation of words (Wortbildung). We will find not a little agreement in the manner of these formations in widely differentiated languages of this family, and this agreement must necessarily point back to a common source. Such a study, to be on a strictly scientific basis, should start from one of the more unchanged and original languages of the branch, preferably from the Batak (Batta) or one or the other of the Filipino vernaculars, and not from the highly disintegrated and corrupted Malay of the present day.* I have, however, willingly incurred the difficulty and undergone the inconvenience of making Malay the foundation of my remarks, because Malay is a language better known to my readers and consequently of greater interest to them.

The simplest formation of words of a new meaning in Malay is by

I. Reduplication.

Herein and in the use of " classifiers " or numeral co-efficients the Malay family of languages is related both to the Chinese (Mongolian) and the Papuan languages. Let us en-

* This must not be understood as in any sense disparaging to the usefulness and importance of the language. Malay has bought its popularity as a medium of speech over so vast a territory at the same price at which English has acquired its world-wide sway: Grammatical finesse and linguistically interesting forms have been lost in equal proportion as the language has affected larger circles of population.

deavour to classify the varieties of the meanings designated by simple reduplications.

1. Specialization and differentiation.

I believe that I place myself in opposition to every grammarian, who has written on Malay, by denying that reduplication is one of the modes of expressing the plural. I will not make any superfluous quotations, but in half a dozen grammars which lie before me, I find it stated that this is one of the plural formations, though in almost every case, the said grammarians find it impossible to state why the word should be reduplicated, as already the single word implies the plural, and why even the reduplication should be joined together with the adjective سكل *segala* which is universally accepted as indicating the plural. A few careful grammarians have noted the fact that only few words can form plurals by means of a reduplication. This observation should have led them to a correct understanding of the meaning of such alleged plurals. The universal paradigma of this "plural" in grammars is راج٢ *raja-raja*. It is well known that راج *raja* alone can mean "kings;" now if *raja-raja* should be used to avoid ambiguity, or to distinguish it from a possible singular "king," why should in almost every case سكل *segala* be added: سكل راج٢ *segala raja-raja*, where the translation "all the kings" or "all kings" is quite out of the question?

In accordance with other Malayan languages, including the Malagasy, I explain the reduplication as intended to specialize the sense of the word. A careful study of Malay literature, aside of any other language, might have led to a correct understanding of the expression. Take for example the ever-recurring phrase in Malay court novels:

دهادقف اوله سكل راج٢ دان منتري هلبالغرسة بدواند سكلين

di-hadap oleh segala raja-raja dan mentri, hulubalang serta biduanda sekalian (Isma Yatim, passim). Not once in this frequent phrase another of the nouns occurring in it, which are all plurals, is found in reduplication, such as mentri-mentri, hulubalang-hulubalang, biduanda-biduanda, while raja is always reduplicated. The heading of this paragraph will supply the explanation of the difference. While the other nouns denote certain offices or ranks, the members of which are equals among themselves, all being ministers or officers of the body-guard, or pages, the title "raja" includes all princes of royal blood (usually below the rank of tengku and engku), inclusive of that large class of attendants at court, who by some however distant blood relation with the ruling prince are thereby differentiated from outsiders. It cannot be denied that there is the greatest variation in rank included under this title, and this the Malay writer and speaker expresses by the reduplication. We may translate the phrase therefore: "(The prince) waited upon by the various classes of Rajas, and the ministers, officers of the body-guard and the pages together."

If there should be yet a reluctance in giving up the long accepted view of seeing in these reduplications proper plurals in our sense of the word, I would refer the reader to those of the Malay classics, which, like the Bustanu's salatin*, the Taju's salatin, and of more modern works, the Taman Permata, are largely made up of Arabic quotations with their Malay translations. It is a very easy task to compare these translations with the Arabic originals, and it will be seen, that in every case where the Arabic plural is at all expressed in Malay, it is done by سكالا *segala*. Passages like these are of great interest to the student of the language, because they are the only

* The Bustanu's salatin is one of the most interesting of all Malay works, especially as it is dated. It was written in Acheh, Sumatra, in 1641 (1040 of the Muhammedan era) by Nuru'ddin ibn Ali ibn Hasanji ibn Muhammad al Hamidi (the author is very careful in giving so much of his pedigree) under the patronage of Sultan Iskandar II. Of the seven volumes the first two have been published by R. J. Wilkinson in 1899 and 1900. I possess a MS copy of the seventh volume. The work deserves the careful study of all somewhat advanced students of the language.

authentic commentaries, giving us the exact meaning of the idiom of the writer, supposing however that he fully understood the Arabic of his quotation, which is highly probable in the majority of cases.

The "specialization" expressed by reduplication leads us to another closely connected meaning, which I do not hesitate to place under the same heading. To start from the same expression راج٢ *raja-raja*, we have found that it cannot be translated "kings," but that the meaning of *raja* has been specialized as meaning something not exactly a king, but only similar to one. This is a kind of specialization very frequent in Malayan languages. Of the large number of examples I can only quote a small portion, which will, however, fully suffice to explain the rule.

لاغيت٢ *langit-langit*, a sky yet not a sky : a baldachin ;

بواة٢ *buat-buat*, to do, yet not to do : to pretend ;

اولر٢ *ular-ular*, a snake, yet not a snake : a streamer, pennon ;

ايم٢ *ayam-ayam*, a hen, yet not hen : a waterfowl ;

جاروم٢ *jarum-jarum*, a needle, yet not a needle, the needle of a balance.

In the same way فوتيه٢ *putih-putih* means whitish, not white, بيرو٢ *biru-biru* bluish, not blue, ماسق٢ *masak-masak* to play at cooking, not to cook, انق٢ *anak-anak* a doll, not a child. اڤي٢ *api-api*, the mistletoe, which causes trees infested by it to have the appearance as if burnt by fire (api). Here it is also worthy of note that in order to express "flaming" anger or wrath the reduplication براڤي٢ *berapi-api* is used,

while the proper word when speaking of natural flames would be برافي *berapi.*

To this class belong expressions such as

قارغ *parang*, long knife, قارغ٢ *parang-parang*, a fish resembling it. قاري *pari*, rayfish, قاري٢ *pari-pari*, a ring of rotan resembling in shape that of the ray.

Many words are now found in reduplications only, which may possibly belong to the same class, though we have no means at hand to prove it. Such words are كانق٢ *kanak-kanak*, سيد٢ *sida-sida* and many others, while in many cases references to other languages help us to place the words under this group. Such a word is لاكي٢ *laki-laki*, manhood, courage, male, brave, which cames from *laki*, strong, great (so in Tagalog, in Malagasy : *lehy*). In Malay the single word signifies the "stronger," but not the "better" half, the husband.

I now append a short list of reduplications from cognate languages, which will show that in this respect the greatest similarity exists.

Reduplications expressing similarity not identity are in

Malagasy:

lahy, husband,	*lehilahy*, man, male ;
vahy, wife,	*vehivahy*, woman, female ;
sala, wrong,	*salasala*, doubtful ;
fotsy, white,	*fotsyfotsy*, whitish ;

Batak:

lahi, husband,	*lahilahi*, male, man ;
boru, daughter,	*boruboru*, female, woman ;

Tagalog :

puti, white, *puti-puti*, semen, sperma ;

I refrain from further illustrating the use of these reduplications by examples. as this would encroach too much upon the space at my disposal.

2. *Emphasis and repetition.* The second meaning expressed by reduplication is emphasis and repetition. This is so common in almost all languages that it is not necessary to go into many details, especially as no radical change of meaning is effected by such reduplication. I select the following examples :

هابيس٢ *habis-habis*, completely finished;

هارڤ٢ *harap-harap*, to hope fervently;

بولة٢ *bulat-bulat* (also in Tagalog) all, most sincere ;

لام٢ *lama-lama*, for ever so long ;

لاين٢ *lain-lain*, (also in Tagalog) altogether different;

اندە٢ *endah-endah*, very beautiful;

تمبه٢ *tambah-tambah*, to add repeatedly;

دوا٢ *dua-dua*, by two and twos, etc., etc.

It may suffice to say here that this sort of reduplication is found in Tagalog, Batak, Malagasy and every other Malayan language.

Reduplications, which are combined with secondary changes of form do not interest us here, where we are treating merely of the reduplication of primitive words.

With regard to partial reduplication, such as

للاكي *lelaki* beside لاكي٢ *laki-laki*,

ڤڤارو *peparu* beside ڤارو٢ *paru-paru*,

تتمڤن٢ *tetampan* beside تڤن٢ *tampan-tampan*,

جمبن٢ *jejamban* beside جمبن٢ *jamban-jamban*,

ججنغ *jejenang* beside جنغ٢ *jenang-jenang*

ببرم *bebram* beside برم٢ *bram-bram*,

no special mention need be made, but that they are found in various Malay languages, (cf. Tagalog *lalaki*, male) and that they all belong to the first group of reduplications, those that express specialization and differentiation.

II. Ancient Vocative Forms.

It may sound very much out of place to speak, in a language like Malay, which has neither declension nor conjugation, of a vocative case. Nor do I wish to imply, by the use of the expression, that the language has ever had a declension. Such a supposition appears to me altogether at variance with the genius of the Malay language. But there is no doubt, that in several of the languages of this family we find a peculiar change of form in words used in the address of persons, which may well be designated as vocatives, and this has been repeatedly done by careful grammarians. It cannot be denied that a considerable number of these expressions, to be presently mentioned, have already lost their distinctly vocative character in Malay, while some forms are losing their character more and more. It may be said that, with one or two exceptions, the forms mentioned here, having yet a distinctive vocative meaning, belong to the language of the past and are preserved almost exclusively in court language or in the poetic style.

Here is a list of the commoner of these expressions:

انغ *anang*, oh child! from *anak*;

ادیغ *ading*, oh younger brother! from *adek*;

باڤغ *bapang*, oh father! from *bapa*;

امبوغ *embong*, eldest child! from *embok*;

اندغ *indong*, mother! from *indok*;

اچغ *achang*, boy! messenger!

I add to these vocative forms words like the following: ابغ *abang*, elder brother; اينغ *inang*, nurse (see examples from Batak below); دايغ *dayang*, maid; اغ *ang*, هغ *hang*, as pronouns of the second person; سولغ *sulong*, eldest son: and with some diffidence I add the ancient names of divinities: يغ *yang* and سغ *sang*. All these words have distinct vocative forms, though they may have lost the vocative meaning, for it is easily seen, how these words, constantly used in the vocative, finally had to do duty for other cases also.

We have forms corresponding exactly to these in Batak, and here in fullest every day use. I mention only the following:

amáng, from *áma*, father!
ináng, from *ina*, mother! (see *inang* in Malay);
ompúng, from *ómpu*, grandfather!
haháng, from *háha*, elder brother or sister! (see Malay كاكق *kakak*);
itóng, from *ito*, elder brother! etc.

The only expression denoting close relationship in Batak, which has no vocative form in use is *anggi*, younger brother, though even this word becomes *angging*, when used in intercourse with younger friends, not brothers, just as *itóng* (from *ito*) and *ibotóng* is used as an address to elder friends.

In Malagasy all forms ending in ng have been changed, and this is the reason, I believe, why we have no formal vocatives. The case of address is expressed as in modern Malay, by particles of exclamation.

In Tagalog, and this opinion is strengthened by the same tendency mentioned above of Malay, the vocative has gradually gained ascendancy over the other cases, so that all nouns and adjectives and pronouns add to their vocalic ending (also to final n) the ending of the old vocative. So we have throughout the language.

inang, mother, from *ina ;*

amang, father, from *ama ;*

panginoong, master, lord, from *panginoon.* In order, therefore to distinguish the proper vocative it is necessary to add the particle of exclamation *oy* or *ay*, which corresponds to the Malay هي *hei* or *hai.*

III. Ancient Adjective Forms.

Lexicographers, rather than grammarians, have noted the existence in Malay of some hitherto unexplained parallel forms, such as :

مالغ *malang* beside الغ *alang ;*

ماسيغ *masing* beside اسيغ *asing ;*

ماسم *masam* beside اسم *asam ;*

ماسين *masin* beside اسين *asin* (cf. Tagalog ma-asin),

مالڤ *malap* beside الڤ *alap*

An opinion regarding these forms, that they may be introductions from the Javanese, is disproved on closer investigation.

By comparison with other Malayan languages, however, we learn beyond doubt, that we possess in these and a few other expressions highly interesting adjective forms. The need, in Malay, of a special form for adjectives must have certainly been felt, especially as the common forms used by us in that sense are indistinguishable from nouns. Though custom has given, to mention but one example, to *besar* the meaning of the adjective "great, large," it must not be forgotten that in very many uses of the word it is a distinct noun. Take the following sentences :

hulubalang itu se-tengah tujuh kaki besar-nya.
Lembah itu dua batu lebar-nya.
Sungai itu dua puloh batu panjang-nya.
Bukit itu se-ribu kaki tinggi-nya.
Anak itu se-puloh tahun 'omor-nya.

In these sentences we have *besar* (size), *lebar* (breadth), *panjang* (length), and *tinggi* (height) absolutely parallel with the Arabic noun *'omor* (age). The substantive use of these "adjectives" is certainly the more original, and even now the more idiomatic.

The ancient adjectives were formed from these "roots" by prefixing the syllable *ma-*. Such forms are in constant use in Tagalog, the languages of Borneo, Batak and Malagasy, as we will show by numerous examples, which might be increased almost *ad libitum*. They must have been used to a much larger extent even in historical Malay, and we should expect to find some remnants of this use in geographical names, where antiquities are much more likely to remain unchanged. It would be worth the labour of a student to make careful lists of Malay geographical names, laying stress upon peculiar expressions, and seeing that modern corruptions (in the mouth of Tamils, Chinese and foreign Malays) be eliminated. I will mention but one name belonging to this group. In the Province Wellesley we find the name of a hill and an adjacent town, usually spelled Bukit Mertajam. The latter word is a corruption of *matajam*, which means "sharp, pointed," Batak *ma-tajom*, and the name "pointed hill" is quite in accordance with the character of the elevation.*

In Batak a careful distinction is maintained in the use of the simple root and that of the adjectival form with the prefix.

The latter is only used as a predicate, never as a qualifying adjective. The sentence "*Ma-timbo hayu on*" means: this tree is high, while the expression "this high tree" is rendered by "*hayu na timbo on*," i. e. this tree which possesses height, which is high, this high tree. Other words belonging to this class are:

* It is possible that the very word Malayu comes under this rubric. No previous explanation of the term has found general acceptation. The Tagalog "malayo" means "far, distant, strange, stranger," certainly a very suitable appellation for the roving strangers that settled in the archipelago.

murara, from *rara*, red (Malay ميره *mērah*);

malemba, from *lemba*, faint, (Malay لمبه *lembeh*);

mamora, from *mora*, rich (Malay مورہ *murah*);

mapitung, from *pitung*, blind.

In Malagasy we have forms like :

malady, quick, *manitra*, fragrant, *maluza*, clever, renowned, *malama*, slippery, smooth, *malemy*, soft, tender (Malay لمه *lemah*), *maloto*, filthy, dirty, *marina*, just, righteous,

mahitsy, straight, *masina*, holy, *mainty*, black (Malay هيتم *hitam*, Dusun *meitam*, Tag. *maitim*).

In Tagalog we find :

ma-itim, from *itim*, black, Malay هيتم *hitam;*

ma-lalim, from *lalim*, deep, Malay دالم *dalam;*

ma-lambot, from *lambot*, soft, kind, Malay لمبوة *lembot;*

ma-lapar(d), from *lapar(d)*, hungry, Malay لاڤر *lapar*;

ma-laki, from *laki*, strong, great, Malay لاكي *laki*;

ma-hina, from *hina*, weak, mean, Malay هينا *hina*;

ma-lakas, from *lakas*, swift, strong, Malay لكس *lekas*;

ma-sakit, from *sakit*, sick, painful, Malay ساكية *sakit;*

ma-puti, from *puti*, white, Malay ڤوتيه *putih.*

The Dusun language of Borneo presents among others these examples : See Journal R. A. S., Straits Branch, vol. 30, 1897, p. 1. sqq.

me-itam, black;
me-suan, dark;
m-iad, alike (from *iad*, form);
m-alus, soft, from *halus*;
m-onsom, sour, from *onsom*, cf. Malay *masam*.

I think that these lists of words will leave the reader satisfied that we have here in Malay a few forms of great antiquity, which go back upon a time when the Malayan languages were not yet divided up into their present divisions, and it is only with the help of the cognate languages of the family that we can grammatically explain them.

IV. Ancient Verbal Forms.

In the formation of verbs, where the modern Malay has effected the greatest change and simplification, we find nevertheless numerous traces of antiquity, of which the Malay has almost or altogether forgotten the original connection.

1. Let me first refer the reader to pairs of words like the following.

كتر *getar*, to tremble. كمتر *gemetar*, to tremble vehemently:

كرتق *gertak*, to spur on, كمرتق *gemertak*, to frighten with weapons;

كولغ *gulong*, to roll up, كمولغ *gemulong*, rolled up and twisted;

كيلغ *gilang*, to glisten, كميلغ *gemilang*, very glistening;

كيلڤ *gilap*, to glisten, كميلڤ *gemilap*, very glistening;

كلاتق *gelatok*, to tremble, كملاتق *gemelatok*, to tremble violently;

كلكوة *gelegut*, to tremble, كملكوة *gemelegut*, to tremble violently;

تورن *turun*, to descend, تمورن *temurun*, farther descent:

تراڠ *trang*, light, تمارڠ *temarang*, half-light, glooming;

تابر *tabor*, to scatter, تمابر *temabor*, to scatter everywhere ;

چورم *churam*, steep, چمورم *chemuram*, declivity ;

لوكة *lukut* and لموكة *lemukut*, to pound parched grain ;

چرلغ *cherlang* and چمرلغ *chemerlang*, to glitter, glisten ;

كوره *guroh* and كموره *gemuroh*, thunder, rolling noise ;

تندغ *tandang* and تمندغ *temandang*, outfit, get-up ;

تالي *tali* and تمالي *temali*, twisted cordage ;

and perhaps the following :

تبوق *tebok* and تمبوق *tembok*, perforated ;

تبة *tebat*, and تمبة *tambat*, tied up ;

تغكوغ *tanggong*, to bear responsibility, تمغكوغ *temenggong*, dignitary.

In many cases the similar sense of the two words will invite an association between them, but this does not provide us with a grammatical explanation of the second form.

We have here forms of a conjugation, which in Batak Grammar has been designated as the Fourth, in Tagalog as the First Conjugation. It is formed by infixing into the verbal stem, after the initial consonant the syllable -um- (or, which does not concern us here, if the root commences with a vowel or labial letter, by prefixing the syllable um-). In the first case, -um- is called an infix, in the latter a prefix. Here are a few of the many examples which might be adduced :

Malay :	Batak :	Tagalog :
سورة *surat*,		*sulat*, *sumulat*, to write

سورو *surut*, *surut*, *sumurut*, to withdraw, to bend back.

اوبه *ubah*, *uba*, *umuba*, *ubo*, *umubo*, to change.

It will be seen that but for the fact that in Malay the vowel sign of the conjugation has weakened, being depressed from u to ŭ or ĕ, the above mentioned Malay forms fully correspond to the Batak and Tagalog forms. Such a slight change is nothing improbable, yet we need not indulge in conjectures in the face of even so slight a change, for we find most of the original forms preserved in Malay dialects, e. g. *gilang-gumilang*, *gilap-gumilap*, *gelatok-gumelatok*, *turon-tumuron*, *churam-chumuram*, *lukut-lumukut*, *yuroh-gumuroh*, etc.

Even in the classes of verbs, which are conjugated according to this paradigma, the closest agreement exists. They are mostly verbs denoting visible motion, trembling, (See Malay: *gemetar*, *gemelatok*, *gemelegut*, etc.), and verbs, to whom this conjugation gives the power of "intensiva" (compare Malay *gemetar*, *gemertak*, *gemilang*, *gemilap*, *gemelatok*, *gemelegut*, *temabor*, etc.)

2. We will now notice another class of verbal formations which also appear to be a remnant of a now obsolete conjugation. The examples given below do not exhaust the large stock preserved in the language, but are merely chosen to illustrate the existence of the conjugation, while many other words doubtlessly belong to this class, though their radicals have been lost to the Malay vocabulary.

تكن *tekan*, to press with the hand, تلكن *telekan*, to lean on the outstretched and stiffened arm;

تكف *tekap*, to press softly with the hand, تلكف *telekap*, to brush away with the hand;

تيغكه *tingkah*, character, تليغكه *telingkah*, to be of different character, to collide;

تاڤق *tapak*, and تلاڤق *telapak*, foot-print:

تڤوق *tepok*, to pat, تلڤوق *telepok*, to tap softly, as in applying specks of gold and silver flocks upon paper or cloth;

تمڤڤ *tempap*, and تلمڤڤ *telempap*, to lay the hand flatly on, to measure by hand's breadths;

چوڤر *chupar*, and چلوڤر *chelupar*, to babble incessantly;

ساڤوة *saput*, to cover with clouds, etc., سلاڤوة *selaput*, to cover densely or closely;

سمڤڠ *sēmpang*, to go off sidewards, سلمڤڠ *selēmpang*, to jump sideways;

سمڤي *sampai*, to hang clothes, سلمڤي *selampai*, to wear over both shoulders, like a shawl;

سندڠ *sandang*, to tie sideways, سلندڠ *selendang*, to wear sideways over one shoulder;

سودڠ *sudang*, and سلودڠ *seludang*; to decorate with flowers in a peculiar manner;

سيدق *sidik*, and سليدق *selidik* to examine closely;

سيسه *sisih*, and سليسه *selisih*, to quarrel, dispute;

گوسق *gosok*, and گلوسق *gelosok*, to rub;

كمبوغ *gembong*, and كلمبوغ *gelembong*, to bubble up;

ككق *gegak*, to make an indistinct noise, كلكق *gelegak*, a bubbling noise.

ككر *gegar*, and كلكر *gelegar*, to vibrate;

كتر *getar*, to tremble. كلتر *geletar*, to tremble violently:

كيتق *getek*, to be forward, as an impudent woman, كليتق *geletek* to feel sensual desire, to suffer of nymphomania,

كوكر *gugor*, to drop, esp. when unripe, كلوكر *gelugor*, a wild mango, which falls in large numbers, when unripe;

كمبوغ *kembong*, to be swollen, كلمبوغ *kelembong*, to be swollen, blown up;

كغكغ *kangkang*, to stand open, كلغكغ *kelangkang*, to stretch out the legs, wide open in indecent posture;

كوڤس *kupas*, and كلوڤس *kelupas*, to peel off.

The enumeration of such examples might be continued much longer, but I will add but a few words, which appear to belong to this class, though the primitive forms are not now extant in Malay:

كليسه *gelisah*, to be restless;

كليچه *gelēcheh*, to slip, to glide;

كلنچور *gelunchor*, to slide down, to glide;

كليڤر *gelipar*, to glide out, as a knife;

كلوڤق *kelupak*, to open up, as the developing banana bud (cf. kupak);

سلوبغ *selubong*, to cover;

سلغكر *selongkar*, to turn upside down;

سلڠكر *selengkar*, to be anxious;

سلغكغ *selongkang*, to be counterfeit;
etc., etc.,

All these forms indicate conjugational changes of the primitive words, with which most are coupled in the enumeration above. It is a conjugation which corresponds to the Tenth conjugation of Batak Grammar, and is formed by the infix -al- and another verbal infix or prefix. While there exist in Batak four different classes of these verbs, according to the difference of the infix or prefix combined with the characteristic of the conjugation -al-, the Malay seems to have preserved none but forms which combine the commonest of all verbal prefixes, me-, men-, meng- mem- or meny- with the infix -al-. I know of no similar formations in Malagasy and Tagalog, though they might possibly be found after a more careful search, perhaps in a slightly varied form, in one or the other of the Philippine languages. I will, however, for comparison, subjoin one or two examples from Batak:

mangh-al-aputi, to do hastily (from *haput*);

mand-al-etes, to be open (as country without jungle);

mand-al-utus, *man-al-utus*, to glide swiftly along (as a boat under sail).

3. Before closing my remarks on the ancient forms of conjugation in Malay, it is necessary at least to mention the most common of all verbal changes, the one which in Malay has superseded all the rest. I refer to the one marked by the prefix: me-, men-, meng-, mem- or meny-, all of which are really the same, modified slightly by combination with the initial consonants or vowels of the verbs. This conjugation is

found in all Malayan languages, as the following examples will show. By selecting Tagalog, Batak, and Malagasy verbs, which are also found in Malay, it becomes unnecessary to select a separate list of Malay examples.

Tagalog:

mang-aral (*aral*) to teach, preach, Malay *mengajar;*
man-ubus (*tubus*) to redeem, Malay *menebus;*
mam-uti (*puti*) to whiten, Malay *memutih;*
man-ulat (*sulat*) to write, Malay *menyurat.*

Batak:

mang-handang (*handang*), to fence, Malay *mengandang* (*kandang*);
mang-embang (*hembang*), to spread out, Malay *mengembang* (*kembang*);
man-urat (*surat*), to write, Malay *menyurat* (*surat*);
mam-unu (*bunu*), to kill, Malay *membunoh* (*bunoh*);
man-obus (*tobus*), to redeem, Malay *menebus* (*tebus*).

Malagasy:

man-enona (*tenona*), to weave, Malay *menenun* (*tenun*);
man-ampana (*sampana*), to separate, Malay *menyempang* (*sempang*);
man-dalo (*lalo*), to pass by, *malay melalu* (*lalu*);
man-doa (*loa*), to spit, *malay meludah* (*ludah*);
mam-eno (*feno*), to fill, *malay memenoh* (*penoh*);
mam-otsy (*fotsy*), to whiten, *malay memutih* (*putih*);
mam-ono (*vono*), to kill, *malay membunoh* (*bunoh*);
man-irakira (*kirakira*), to finger, to count, Malay *mengira-ira*, (*kira-kira*).

The writer of these fragmentary notes on Malay Grammar trusts that his readers will excuse the many imperfections of this article. Though the subject treated in these pages has occupied the interest of the writer for a considerable time, the actual writing was done under great inconveniences, in the spare moments of a very busy period, and without the advantage of a large library close at hand. He should, however, feel well repaid for having undertaken the task, if by his attempt others would be encouraged in taking up this inviting subject.

The Sakai and Semang Languages in the Malay Peninsula and their relation to the Mon-Khmer Languages.

By P. W. Schmidt, s. v. d.

Reviewed by W. D. Barnes.

In the third and fourth numbers of the eighth part of the sixth series of the Bijdragen tot Taal-Land-en Volkenkunde van Nederlandsche-Indië, published in 1901, is a paper by P. W. Schmidt, S.V.D., written in German with the title "Dir Sprachen der Sakei und Semang auf Malacca und ihr Verhältniss zu den Mon-Khmer-Sprachen." The following abstract of it will I think, have great interest for readers of the Journal.

The author begins his introduction as follows:—

"'More important than these connections with the An-
"namite language are the undeniable relations of our mono-
"syllabic Khasi-Mon-Khmer root-stock with the Kohl language
"with that of Nancowry and with the dialects of the abori-
"gines of the Malay Peninsula. We should not however be justi-
"fied in deducing therefrom an ancestral connection with these
"partly polysyllabic languages.' So wrote E. Kuhn towards the
"end of his 'Articles on the languages of Further India' Beit-
"räge zur Sprachenkunde Hinterindiens. Sitzgsb: d. k. bayer. ac.
"d. w. phil-hist. LL 1899 I. p. 219 f.f.) Thus he leaves open the
"question whether there exists between the Khasi-Mon-Khmer
"group and the Khol languages, that of Nancowry and the
"dialects of the aborigines of the Malay Peninsula, an intimate
"actual relationship, or whether the evident identities are due
"merely to external influences.

"Some years later—1894—E. (sic.) Otto Blagden in the
"Journal of the Straits Branch 27 pages 21-56, without appar-
"ently knowing anything of Kuhn's work put forward a more

"complete comparison of the Vocabulary of the dialects "of the Peninsula aborigines with that of the Mon-Khmer "(Anam) languages. But as his title "Early Indo-Chinese in- "fluences in the Malay Peninsula, as illustrated by some of "the Dialects of the Aboriginal Tribes" shows, Blagden also "did not go so far as to conclude that the identities to which "he drew attention arose from any intimate connection between "the two groups of languages. He says, 'But even to assume "that the aboriginal dialects are cognate languages which should "be classified in the Mon-Annam family would be going further "than our evidence justifies us in doing.' Neither Blagden nor "Kuhn had examined the whole material which is available on "the subject of these aboriginal dialects. It is my purpose to "collate this full material and to endeavour by its aid to remove "the present uncertainty concerning these dialects and to settle "their genealogical relation beyond doubt. For this purpose "it is first necessary to settle the relationships of these dialects "to one another, a task which in itself demands much labour "since no comprehensive work has been done on the subject. "The first half of my paper will comprise this comparison, and "the comparison of the aboriginal dialects with the Mon- "Khmer languages will occupy the second half."

His first part the author begins with a list of publications in which words, vocabularies, etc. from the aboriginal dialects have been given. This list is I presume the completest yet published and I give a full abstract of it. Journal of the S. B. R. A. S. Vol. I, p. 38; V, p. 129; VII, p. 94; VIII, p. 9; XXIV, p. 13; XXVI, p. 41; XXVII, p. 27; XXX, p. 13.

(1). T. J. Newbold "Political and Statistical Account of the British Settlements in the Straits of Malacca." London. 1839, Vol. II, pp: 369-434.

(2). The MSS of Hrolf Vaughan Stevens. Veröffentl: d. K. Museums f. Völkerk. zu Berlin; Bd 2 und 3.

(3). Marsden's Miscellaneous Essays:—A Short List of 'Jakoon' words from Raffles of 'Jooroo' Semang (J. Anderson given as collector) and of 'Quedah' Semang.

(4). Roberts' Embassy to the Eastern Coasts of Cochin China, Siam, Muscat:—'Jooroo' Semang—A list of words (Mr. Maingay given as collector) and 'Quedah' Semang (McLunes

given as collector):—apparently the same lists as those given by Marsden.

(5). Klaproth, Journ. Asiatique 12 pp. 241-243 (Semang.)

(6.) Mentera-Glossen (Mantra) by Borie, Tijdscrift voor Ind-Taal-Land-en Volkenkunde 10 pp: 439, &c.

(7). Crawford. History of Indian Archipelago, Edinburgh 1820. Nrs. 12: ('Quedah' Semang—apparently the same list as given by Marsden and Roberts).

(8). Sakaya S. Kerbou &c. by L. de Morgan "Bulletin de la Société Normande de Géographie, Rouen 7. 1885. p. 434 &c. also printed in L. de Morgan Exploration dans la presqu'île Malaise, Paris 1886.

(9). J. Low, Sakai in Perak. Journal of the Indian Archipelago. Old Series IV, p. 430.

(10). Tomlin. A list of Samang words, "Extract from the Malacca Observer from an article on Tomlin's Mission-Travels (Royal Library, Berlin).

(11). Miklоucho-Maclay, Tijdschrift voor Ind.-Taal-hand-en Volkenkunde 23 reprinted in Vol. I of J. S. B. R. A. S.*

The next ten papers contain a critical examination of this material. The author points out that several of the old lists are wholly or partly copies of one another and laments the infinite variety in the methods adopted by the different collectors in the spelling of words given. 'Clifford alone' he says (to some extent Blagden and Hewitt) makes a praiseworthy 'attempt to give a determinate value to the vowels used."

The author himself employs throughout the system of Fr. Müller except that he uses ǧ instead of dž.

The next 75 pages contain a vocabulary compiled from the various lists, etc., detailed above. This vocabulary contains

* Here and elsewhere the author also quotes the following books :—

Alb: Grünwedel. Veröffentlichungen aus d. k. Museum für Völderkunde in Berlin (1894).

Bd : 3 Teil 2. p. 145. (Bibliography and Glossary.)

R. Martin. Die Ur einwohner der Malayischen Haltinsel. Sonder Abdr. aus. d. Corresp.—Blatt der deutsch Anthrop. Gesellschaft, 1899. Nrs. 10 p. 6.

1249 roots arranged alphabetically. The author explains that it is possible that in some cases further enquiry or rather fuller material for enquiry may show that some of his roots may require correction, but contends that for his purpose the arrangement adopted is the most useful one. All hypothetical root-forms are enclosed in brackets. All Malay loan-words are omitted.

Next follow the only available 'texts' viz:— those given by Skeat in Berisi by Clifford in Sen-oi and by de Morgan in Sakai of S. Kerbou and S. Raya, and in 'Söman.' The translations are given in each case.

The next thirty pages contain a discussion of the 'Grammatik.'

The fourth subsection of the first part is headed "The re-"lation of the dialects to one another." The author begins as follows:— "The questions as to the relation of these "languages to one another and to their correct grouping are "the more important since the races who speak them have no "ethnological unity. The Sakai although sharply distinguished "from Mongolian races have a more Mongoloid character than "have the Semang. The Semang on the other hand belong "as even B. H. Meyer's very critical examination shows, "to the Negritoes. Our examination has therefore a further "meaning in that it aids in answering the question whether "these Semang-Negritoes have a language of their own." In the next nine pages the author examines in detail the similarities and differences in the vocabularies of the various dialects and concludes that, as far as the present state of our knowledge allows us to judge, the Sakai and Semang languages are one. He then points out the two marked groups into which this one language falls. In the one group come the words, etc., collected from 'Quedah-Semang' Semang of Tjoh. Steven's Semang, Semang of Ulu Selama, Mikonho-Maclay's Ulu Kelantan and Ulu Petani, Tomlin's Semang 'Jooroo-Semang,' in the other words, etc., collected from Bersisi, Palou, Ulu Indau, Sakei of Sungei Raya, Clifford's Sen-oi, Sakai of J. Kerbon, Sömang of de Morgan, Clifford's Tembe. Perak Semang and Chanderiang Sakai.

The author now points out that it is not safe to believe that collectors of vocabularies who have called certain races

Sakais or Semangs have in all cases correctly described them. He therefore tests these statements by the locality, physical peculiarities, etc., of the tribes in question. He points out that Semangs do not exist in the southern part of the peninsula and quotes R. Martin who gives as their country northern Perak, Kedah, Rahman, Rangan, and Kelantan, a description with which Stevens agrees. He further notes that the Semang use or have used the bow, and that there is no record of the Sakais having done so. He concludes that the Semangs in his first group are correctly described but that de Morgan's 'Söman' and the 'Perak Semangs,' and 'Kenning Semangs' mentioned in fifth volume of the J. S. B. R. A. S. may very possibly have been Sakais or at all events mixed races. The Sakai who form his second group fall linguistically into two sub-classes the divisions between which seem to be confirmed geographically by Clifford's line from Blanja on the Perak River to the Bidor Mountains and thence to Kuala Angin in Kelantan to the north of which line Clifford found his Tem-be to the south his Sen-oi. He concludes therefore that the Semang and Sakai form two different branches of one language and that the Sakai branch shows two sub-branches.

The second part is headed 'comparison of the Sakai and Semang languages' and opens with a list of books consulted by the author in his study of the latter. Then follows a list of those Mon-Khmer words and roots which are found to be similar to words and roots in Sakai and Semang. The author's comments on this are as follows :—"The above agreements seems "to me to be amply sufficient both in number and kind to nega- "tive the suggestion of 'A mere external borrowing.' As to the "their number out of the 1249 forms contained in the vocabulary "there are about 240 such agreements. That is in itself a notable "result but it gains in meaning when two things are borne in "mind :—First that most undoubtedly a part at least of the "materials for the Sakai and Semang languages are recorded "with a wrong or uncertain meaning thus rendering it difficult "or even impossible to find their correct equivalents in Mon- "Khmer, and secondly that another part,—more specially that "collected by de Morgan and Stevens, is of such a nature "(names of implements and individual parts of them, of individ-

"ual plants, etc.,) that in any case corresponding expressions "for them could hardly be expected. Finally it must be pointed "out that in these prefix-languages it is most difficult to find "corresponding words in dictionaries which are arranged al- "phabetically according to the initial letters of the words, and "that our vocabularies of a part at least of the Mon-Khmer "languages are by no means complete."

The words showing similarity are next arranged in groups as follows:—Nouns: 18 such as God, Thunder, Night, Rain, Stone, Fire, etc.; 8 such as Tree, Flower, Rice; 21 such as Louse, Fly, Egg, Dog, Elephant, Rhinoceros, etc.; 18 such as Man, Stranger, Wife, Aunt, Nephew, etc.; 33 such as Blood, Hair, Mouth, Neck, Belly, Elbow, etc.; and 13 such as Clothing, Arrow, Knife, Stick, etc.; Verbs: 61 including to go, give, sleep, fasten, see, sit, turn back, cry, call, speak, drink, etc.; and 33 Adjectives and Adverbs: such as many, white, with, bad, sweet, cold, etc. The author continues:— "The comprehensive manner in which all kinds of correspondences "are represented and more especially in which the names for "almost all parts of the human body show agreement and finally "the large number of indentities in verbs and adjectives leave, "in so far as an examination of the grammatical relations of the "two groups of languages offers no obstacle, one conclusion "only, viz:—that there exists an inward and intimate condition "between the Sakai and Semang languages and those of the Mon- "Khmer."

The author next points out that there is a small number of words occurring in many Sakai and Semang dialects for which no corresponding words can be found in Mon-Khmer, but he asserts that the existence of these can not disturb the conclusion drawn from the total result more especially as further search in the more out-of-the way dialects of Mon-Khmer may yet reveal them. He then continues:—"As against these however great stress must "be laid on the part that for those particular words which con- "stitute the difference between Semang and Sakai no parallels "can be found. If therefore we can rely upon our knowledge "of the Mon-Khmer vocabulary it is very remarkable that it is "these words and these (so to speak) alone which fail us. "When further we bear in mind that the words in question are "such as are in constant use in every day life it seems most im-

"probable that their parallels will be found in these Mon-Khmer "languages of which we have at present any knowledge and it "may be regarded as very doubtful indeed if any entirely new "branch of these languages will be discovered which will supply "the deficiencies. It seems therefore very probable that we have "in these words a remnant of the former Semang-Negrito-lang-"uage. If that is really the case then further and more exhaus-"tive research will certainly reveal still more material of the "same kind. May this be a keen incentive to those who are in "a position to make such researches to commence them without "delay before the rapidly advancing disappearance of these races "render further proof ever impossible! Perhaps we may be able to "oppose some positive facts to that wave of theories which has "burst over these poor Negritoes!"

The next eighteen pages are occupied with a close comparison of the "Grammatik" of the two groups. The following conclusions are drawn:—

(i) The sounds are in essentials the same.

(ii) The word-formation follows the same laws.

(iii) The personal pronoun shows as much identity as can be expected.

(iv) Pronouns and adverbs are in essentals demonstratively the same.

(v) The syntactical relations of nouns, adjectives and verbs are the same.

(vi) The numeral is the same in form and construction.

The author continues:—"Against these resemblances and "identities no important divergencies are as yet opposed. When "we consider them in conjunction with the wide spread identities "in the vocabulary we are justified in concluding that the Sakai "and Semang languages are intimately related with the Mon-"Khmer languages and must be regarded as a member of that "family. In the case of the Sakai languages this conclusion can "be pushed further. When we consider the physical resemb-"lances between the Sakai and the Mon-Khmer peoples we are "justified in saying that the language now spoken by the Sakai "was the original Sakai language."

The author then gives the following four physical characteristics of the Mon-Khmer people:—

(i) Dolicho-cephalic skulls.
(ii) Darkish skins.
(iii) Eyes horizontal not oblique.
(iv) Hair wavy not straight and not woolly; and he quotes R. Martin and Logan as proving that the Sakai have the same peculiarities.

He continues:—"It is otherwise with the Semang. Their "darker colour, and woolly hair separate them anthropologically "both from the Sakai and from the Mon-Khmer people. The "fact that they speak what is essentially the same language can "only be explained on the assumption that they have abandoned "their own and adopted a foreign one. As is the case with the "Negritoes of the Philippines the original Negriti language seems "to have been lost although indeed in the case of the Semang a "number of words appear to exist as a new want of it.

The paper here ends. It covers 180 octavo pages and is obviously the outcome of most careful and labourious work. It is much too important not to be noticed in the Society's Journal and in default of a review by a competent hand my abstract may, I trust, suffice to direct the attention of members to it.

The Comparative Philology of the Sakai and Semang Dialects of the Malay Peninsula—A Review.

By C. O. Blagden.

There has recently appeared in the *Bijdragen tot de Taal-Land-en Volkenkunde van Nederlandsch-Indië* a monograph [a] of some length on the Sakai and Sĕmang dialects, which may fairly claim to be the most comprehensive piece of work yet done in this connection and is therefore deserving of the attention of the readers of this Journal. It is the more interesting as being the first occasion for many years that a scholar of some standing in Europe has been attracted to the study of these dialects, and it will serve as a landmark for future collection and research in relation to his rather neglected subject.

Never before have these dialects been submitted to the systematic comparison to which Professor Schmidt subjects them in his paper. It has been his purpose to collate all the existing published materials and to see whether any sound inferences could be drawn from such a comparison. He has actually omitted very little, and that little is not of the first importance. The sources from which he draws are carefully enumerated: they include, besides the previous numbers [b] of this Journal the works of Newbold [c], Roberts, [d] De Morgan [e] and Vaughan Stevens [f] as well as the vocabularies published by Klaproth [g] Tomlin, [h] Low, [i] Borie [j] and Maclay, [k] so that they comprise practically everything of permanent value that had

---

a. Die Sprachen der Sakei und Semang auf Malacca und ihr Verhältnis zu den Mon-Khmĕr Sprachen, von P. W. Schmidt, S. V. D., Bijdragen, etc., ('S Gravenhage, 1901) No. 52, (6e Volgr., Deel 8) pp. 399-583.

b. Nos. 5, p. 129 *et seq*; 8, p. 112 *et seq*; 9, p. 167 *et seq*; 24, p. 13 *et seq*; 27, p. 22 *et seq*; 29, p. 13 *et seq*; See also Nos. 1 p. 41 *et seq*; 3, p. 113 *et seq*; 33, p. 247 *et seq*.

appeared in print about these dialects when the author's paper was written[l]. The addition of the relatively few words given by Lias[m] and the vocabularies of Castelnau[n] and Errington de la Croix[o], as well as those published in the Selangor Journal[p], would have made the collection as nearly complete as could have been wished.

---

c. T. J. Newbold, Political and Statistical Account of the British Settlements in the Straits of Malacca, (London, 1839) Vol. II, pp. 369-434.

d. Edm. Roberts, Embassy to the Eastern Courts of Cochinchina, Siam, etc. (New York, 1837) pp. 413-415.

e. L. De Morgan, in Bulletin de la Société Normande de Géographie, (Rouen, 1885), Vol. 7. p. 434 *et seq*; reprinted as Exploration de la presquîle malaise, (Paris, 1886), Linguistique.

f. H. V. Stevens, (ed. Grünwedel) Materialien zur Kenntniss der Wilden Stämme auf der Halbinsel Malaka, in Verröffentlichungen aus dem Königlichen Museum fur Völkerkunde (Berlin, 1892, 1894) esp. Pt. II, p. 145 *et seq.*

g. Klaproth in Journal Asiatique No. 12, pp. 241-3 (Paris, 1883).

h. Tomlin, "A list of Samang Words" from the "Malacca Observer," no date given. This appears, however, to be a mere reprint of the list given by Begbie in The Malayan Peninsula, (Vepery Mission Press, 1834) pp. 14-18.

i. Low in Journal of the Indian Archipelago, Vol. IV, p, 431.

j. H. Borie, Notice sur les Mantras, in Tijdschrift voor Ind. Taal-Land-en Volkenkunde Vol. 10, p. 439 *et seq.* (Batavia, 1861) (translated in Indo-Chinese Essays, 2nd Series, Vol. I.)

k. Miklucho-Maclay in Tijdschrift voor Ind. Taal-Land-en Volkenkunde, Vol. 23 p. 303 *et seq*, p. 309 *et seq.* (Batavia, 1876). A part of these last also appeared in this Journal (No. 1), but the lists there given are less complete and are disfigured by several misprints.

l. See also J. Crawfurd History of the Indian Archipelago Vol. II, p. 125 *et seq.*, (Edinburgh, 1820). Malay Grammar Vol. I. p. clxvi, clxxi-ii (London, 1852). W. Marsden, Miscellaneous Es-says, (London, 1834), pp. 87, 113. J. Anderson, Political and Commercial Considerations relative to the Malayan Peninsula (Prince of Wales Island, 1824) p. xliv *et seq.*

m. Brau de St. Pol Lias, Pérak et les Orangs-Sakèys (Paris, 1883) pp. 270-273.

n. F. de Castelnau, Mémoire sur les Mantras, Revue de Philologie et d'Ethnographie (Paris, 1876), Vol. II, pp. 142-3.

o. Errington de la Croix, Les Sakaies dé Pérak, Revue d'Ethnographie (Paris, 1882) Vol. I, pp. 317-341.

p. Selangor Journal (1895) Vol. III p. 223 *et seq;* 240 *et seq;* (1897 (Vol. V p. 325 *et seq;* 361 *et seq;* 378 *et seq*; 393 *et seq.*

The author's merits, however, do not lie in the mere compilation of materials: he analyses his sources with the utmost ingenuity, showing how in some cases two authorities have borrowed from one source, which is sometimes a written, sometimes an unwritten one, and how the several vocabularies are related *inter se*[q]. Here it might have been worth while to go even more deeply into the bibliography of the subject, and to show, for instance, that Klaproth's list is an unacknowledged copy from the one that appears in Crawfurd's History of the Indian Archipelago, eked out however with some additions from elsewhere, and to mention that Roberts merely copies, as he himself admits, from Anderson. In dealing with Newbold's somewhat irritating "Benua" list, the author rightly points out that it is a heterogeneous mixture of Bĕsisi with words from some Sĕmang dialect cognate to the one given by Tomlin (and Begbie); but his want of first-hand acquaintance with the spoken dialects of Malacca has prevented him from recognizing in it a third element, viz: Jakun, which is represented by a good many words collected for Newbold by Munshi 'Abdullah, as related by the latter in his well-known Autobiography. It is worth noticing too, though the author does not mention it, that the older sources (i. e., prior to 1875) practically all deal either with the Sĕmang dialects of the North of the Peninsula (collected from Penang) or the dialects of the south (collected from Malacca). The latter barely take in the Southern fringe of the Sakai group, the purer forms of which, situated as they are in the centre of the Peninsula, remained quite unknown (except for the short notice by Colonel Low) until the introduction of the Residential system opened the Native States to European enquirers.[r]

---

q. I may, perhaps, be permitted, in this connection, to confirm the author's inference, drawn purely from internal evidence, that I did *not* copy the Bĕsisi words I gave in a former paper from my friend Mr. W. W. Skeat, or *vice versa*. Mine were collected in Malacca, his in Selangor. I venture to think it is rather a tribute to our accuracy that they exhibit so few serious discrepancies.

r. Bearing these limitations in view and allowing for their occasional errors, the old lists are still very valuable and well worth studying, especially for the Sĕmang dialects.

After discussing the sources, Professor Schmidt gives a comparative vocabulary of words of all the aboriginal dialects represented in them, reduced as far as possible to a uniform system of spelling and arranged according to the apparent relationships of the individual words. This has been very well done and must have been a difficult and troublesome task, but it is needless to say that such an arrangement (the only one possible for comparative study) is necessarily, in the present imperfect state of our knowledge of the subject, to some extent tentative and provisional. In many cases the author's assumption of an underlying affinity seems somewhat unconvincing. It is difficult, for instance, to believe that *log*^{n} is the same word as *jĕhu*: true they both mean "tree" or "wood" (though I believe *log*^{n} = "tree," Mal. pohon and *jĕhu* = "wood" Mal. kayu), and there are, it must be admitted, forms in existence which seem to be almost intermediate between them, e. g., *delok*^{n}, *jelop*, *jĕhup* and the like, but the evidence of identity does not seem to be quite conclusive, the more so as, apparently, the two variant forms appear on occasions together in one dialect.[s]

Sometimes, too, in his natural desire to arrive at identifications, the author is inclined to take liberties with his authorities: e. g., he will have it that *ge*, "to eat" (in Sĕmang) is to be pronounced *je*, so as to bring it into line with the other and more common word for "to eat," viz: *cha* (Sakai), *chi* (Sĕman). But the *g* in *ge* is hard, and the word appears to be quite distinct from *cha* and *chi*.

In compiling his comparative vocabulary, the author has designedly omitted words of Malayan origin.[t] This is somewhat regrettable as the forms assumed by these words in the aboriginal dialects throw an interesting light on their phonology. Moreover the omission seems to involve the assumption that all such words are of comparatively modern importation from Malay, whereas in fact there are in these dialects words of undoubted Malayan affinity which cannot possibly have come into them in that way. Certainly such words as *to'ot* "knee", *asu* "dog" *awe*

s. See Dr. Luering's Ulu Kampar Sakai in No. 35 of this Journal.

t. The process has not been quite completely carried out, some 50 words being left in, besides those noticed by the author.

"rattan," *siah* "salt," *manuk* "fowl," *kebus* "dead," *hirum* "black," point back to a Malayan dialect *other than Malay*, and the presence of such words, relatively few though they are, inevitably throws some doubt on the origin of others whose source, by reason of their being common to Malay and other Malayan languages, is necessarily a subject of uncertainty.

The omission of these words obscures one important element in the constitution of the aboriginal dialects which must not be left out of sight in any speculation as to their origin and affinities.

It is difficult to account for their presence in the aboriginal dialects of the Peninsula except on the assumption that they represent relics of Malayan dialects locally evolved there and distinct from Malay itself, which is a Sumatran language not originally native to the Peninsula; and in that case their introduction must, it would seem, be of very ancient date, going back to the days when Malay had not yet become the language of the Peninsula; or to put the same thing in another way, some of these aboriginal dialects are, at any rate in part, derived from an independent Malayan origin going back to a remote antiquity. While, therefore, there can be no doubt as to the importance of the well-known Mon-Annam element in the aboriginal dialects, this very archaic Malayan element is equally deserving of recognition.

These points are not without importance, for the author's argument for the Mon-Annam origin of these dialects depends to some extent upon the percentage of Mon-Annam words which can be discovered in them: if therefore the aggregate number of words examined is unduly reduced, either by arbitrary exclusion or by doubtful identifications, it is plain that this percentage will be overstated. As the figures stand, the author reduces his words to about 1250 and of these he professes to identify about 240, say 20 per cent, as Mon-Annam. The comparison is made at a later stage, and it is rather anticipating matters to mention it here, but it is the main thesis of the article.

Most of the identifications seem to be quite unassailable and even if they only account for something less than 20 per cent of the vocabulary, that is still a considerable achievement.

But a good many are at least doubtful, and one great element of uncertainty remains which it is at present impossible to eliminate, viz: the question whether the so-called Mon-Annam languages themselves constitute a true family or are not rather a very mixed formation, embodying various elements of unknown origin.

The point is shortly this: so long as one is dealing with Peguan or Cambojan, about which, as they are written languages, a considerable amount is known, one is on relatively safe ground and can fairly refer words, that are attested by their appearance in these two languages, to the Mon-Annam group. But when it comes to words that reappear only in such dialects as Lemet, Cat, Sedang and the like, of which merely a few short vocabularies exist, while little or nothing is known of their structure, the genuine Mon-Annam character of such words is at least doubtful. The frequent comparisons with Cham which the author makes also illustrate this point: for Cham is, in part at least, a Malayan language. Such a word as *cheong* "belly" in Sĕmang, if it be really identical with the Cham *tian*, cannot be referred to a Mon-Annam origin, for *tian* is unquestionably Malayan, occurring as it does in several island languages of the Archipelago.

The fact is that one is dealing here with very mixed materials, and even the greatest care will not prevent an occasional mistake.

After setting out the comparative vocabulary and the too few sentences which have been recorded, the author proceeds to give what is really the first attempt at a comparative grammar of these dialects. As a first attempt it can only be characterized as admirable.

He begins by discussing the sounds, both vowels and consonants: and here it is worth while laying stress upon his well-grounded complaint that collectors almost uniformly omit to give a key to their systems of orthography. If they would only be good enough to explain precisely how they intend words to be pronounced, the work of the comparative student would be much facilitated. The discussion of the phonology of these dialects brings out several interesting points. The nasal consonants are noticed; the nasal vowels, however, which are

equally well-marked, are not observed by the author, that is not his fault: it may be explained that they somewhat resemble the French *u* sounds, but are not unfrequently followed by an ordinary consonant. The pronunciation of the palatal letters (*ch*, *j*, *sh*) seems to require further elucidation, as it is not quite clear whether they are identical with the corresponding English sounds or somewhat softer. There is a question whether all the so-called diphthongs are really diphthongs or merely two vowels in juxtaposition, each retaining its separate force. A few letters seem to be doubtful: e. g., *z* and *f* in Newbold's list, where the former represents a rough (probably palatal) *r* and the latter generally a *p*; but both *z* and *f* appear, though rarely, in Sĕmang, and *z* in a few Sakai words. On these points perhaps future collectors may throw more light.

Reduplication and repetition as modes of word formation are next noticed, and then follows a most valuable section on prefixes and infixes. Their existence as formative elements in these dialects has been pointed out before,[u] though never worked out as completely as is done here. There can be no two opinions as to its importance, especially in relation to the closely similar formation of the Mon-Annam and the Malayan families of speech. It may however be as well to express a doubt as to the soundness of the author's view that a prefix can be assumed whenever a word appears in two slightly varying forms differentiated by their initial syllables, or by the absence in one case of an initial syllable which appears in the other. In the first place, the mutability of sounds in these dialects is something quite remarkable, but this need not imply that the syllable which changes is a prefix, that is to say a merely formal accretion and no part of the essence of the word: for the same mutability shows itself in the final consonants,[v] which must surely be part of the root. Secondly, where there are two forms, a longer and a shorter, it is by no means certain that the shorter is always the original one: it may be only an abbreviation, the result of rapid speech and phonetic decay. Some allowance, too, must be made for the defective observation and spelling of some collectors.

u. e. g., by Mr. W. W. Skeat in Selangor Journal, Vol. V, p. 328.
v. The author gives instances of the interchange of k, -t and -p.

Still, after making a reasonable allowance for these sources of error, there remains a large number of words in which the existence of prefixes is quite certain. Their meaning is more difficult to arrive at, but some, e. g., *Ka-* in Bĕsisi and *ma-* in Sĕmang are undoubtedly verbal, and there are others which are apparently adjectival and pronominal or demonstrative. One very curious verbal prefix found in a dialect of the Northern Sakai group (but by the collector, De Morgan, called Sĕmang) appears to vary its final consonant to suit the final consonant of the principal root: e.g. *nĕpchip* "to go", *neblŭp* "to enter," *nĕkpok* "to open." This would seem to be in reality a combination of a prefix and a broken down repetition of the root word.

The author after comparing in succession the pronouns, personal, possessive, demonstrative and interrogative, proceeds to deal with the syntax of the substantive. It is worth noting that, so far as appears, the same system of syntax runs through all these dialects. The nominative (subject) precedes the predicate; the genitive, adjective and demonstrative pronoun follows the verb which governs it. Apparently there is no foundation, at any rate in the materials here analysed, for the theory that in Sĕmang the ideology is different.

Next the numerals are compared: here there is a clear classification into groups, and as the numerals raise certain points of some difficulty and considerable interest it seems desirable to give specimens of the various types which occur. They are as follows:—

	I *Sĕmang.*	II *Sakai.* (*Tĕmbe'*)	III *Sakai.* (*Sĕnoi*)	IV *Bĕsisi* (and other southern dialects)
1.	nai	neh (nei)	nanu	mui
2.	bie	nar	narr	'mbar
3.	(various)	ne'	ni	'mpe'
4.	(various)	(none)	(none)	npun
5.	(none)	(none)	(none)	măsok^{n}
6.	(none)	(none)	(none)	pĕru
7.	(none)	(none)	(none)	tempo

For *three* in Sĕmang the forms *pat*, *ne*, *diu* and for *four* *sa-beh* and *nos* are given. These seem doubtful; but all the forms

given in the above table are well attested, and it is noticeable how little agreement there is between the Sakai on the one hand and the Sĕmang and Bĕsisi respectively on the other. It is true that *one* appears to be the same in groups I and II and possibly this is due to the fact that II is a mixed group of Sakai with a tinge of Sĕmang in it, as is evidenced by other words common to these two groups. But the author's attempt to derive the forms of groups I, II and III from the purely Mon-Annam forms of group IV is more or less conjectural, and even if it is correct it leaves one with the curious result that the pure Sakai is (as regards the numerals) further removed from the regular Mon-Annam type than the mixed Bĕsisi and its neighbours. This group IV consists of a string of outlying dialects scattered along the border line between the pure Sakai and the Jakun, in a tract of country which extends from Ulu Tĕmbĕling and Kuantan (Pahang) to the Jasin district of Malacca and from Kuala Langat (Sĕlangor) to Ulu Indau (Johor). In this group alone [w] do the numerals extend beyond *four*, and that fact as well as their singularly good state of preservation (in these very mixed dialects) seems to me to indicate that these Mon-Annam numerals were not native to the aboriginal dialects of the Peninsula but were imposed from without, and that they either have nothing whatever to do with the Sakai numerals (from which they certainly cannot be derived) or that they have filtered through into Sakai in degenerate forms. It seems very unlikely that the pure Sakai first imposed its numerals (in a primitive form) on the Jakuns who speak Bĕsisi etc., and then proceeded to corrupt them while the Bĕsisi preserved them unchanged.

So far as this evidence goes, it appears to me to tell against the conclusion which the author ultimately arrives at, viz: that all the aboriginal dialects of the Peninsula are branches of the Mon-Annam stock.

It will be seen, too, that it is a mistake to regard the various dialects as corruptions, in different degrees, of one single type

---

w. Some rather dubious lists of numerals beyond "four" are given by two or three authorities, but all differ *inter se* and are suspected on that ground.

of Sakai, represented in its purest form by the Sĕnoi dialect. This erroneous view has perhaps tended to discourage the collection of the other dialects, which has been stigmatized as useless except for the purpose of studying the progressive decay of the language. It is evident, however, that Sĕnoi, though no doubt on the whole the purest type of its own class of Sakai, cannot be called upon to explain all the other dialects, some of which appear to be in some respects nearer to the ancient forms.

I need say nothing of the author's further comparison with the numerals of two Borneo dialects given in Mr. Ling Roth's work on Sarawak, as Mr. Ray (in "Man" 1902, No. 42) has shown that one of these so-called Borneo dialects is really a Sakai dialect of Perak collected by the late Mr. Brooke Low, while the resemblance of the other is very slight and clearly fortuitous.

After pointing out that a fair number of words (some 50 or so, and all or nearly all of them of Mon-Annam origin) run through almost all the dialects, the author next proceeds to analyse the lists where they differ, with a view to discovering the relationship of the various dialects *inter se* and establishing a classification of them into groups. Considering the paucity of the materials for many of the dialects, this is really a brilliant piece of work, to which justice could be done only by going into details for which there is no space in this notice. The upshot of it is that the dialects of the Peninsula, so far as they are here represented, fall into the following groups:—

I. Sĕmang.

(i) A relatively pure Sĕmang (and Pangan) group, curiously homogeneous though covering a large tract of country and extending from Northern Kĕdah to southern Kēlantan;

(ii) Another Sĕmang group, less pure than the preceding, represented by (a) the "Jooroo" (Juru) Sĕmang of the authorities, (b) the dialect given by Begbie (and Tomlin) and (c) certain words in Newbold's "Benua" list: apparently to be regarded as "low country" Sĕmang as opposed to the purer dialects of the interior hills.

II. Sakai.

(iii) The Tĕmbe' (or northern) Sakai group;

(iv) The Sĕnoi (or central) Sakai group and the southern dialects, such as Bĕsisi.

Substantially this classification, so far as it goes, would seem to be entirely justified by the existing materials. It will be observed that the main line of division (that between groups I and II) corresponds pretty closely with the difference in race between the Negritos (Sĕmangs) and the Sakais, while the sub-division of group II into sub-groups iii and iv coincides with Mr. Clifford's distinction between Tĕmbe' and Sĕnoi and agrees with Dr. Luering's statement (which is borne out by a comparison of their vocabularies) that the Ulu Kampar Sakais, who belong to sub-group iv, cannot understand the dialect of the Kinta Sakais, who fall into sub-group iii. So far at least as the Western half of the Peninsula is concerned, this classification will probably stand the test of further enquiry: in Pahang there appear to be dialects of a mixed character which partake of some of the characteristics of several of these sub-groups and have peculiarities of their own as well. Of these the author had no knowledge, as they have not as yet appeared in print.

It is probable that sub-group iv should be further sub-divided into —

(a) Central Sakai, including Sĕnoi, the Southern Perak dialects and some of the Sĕlangor dialects, down to and including the dialect of the Orang Tanjong of Ulu Langat,[x] and

(b) Bĕsisi and a straggling group of allied dialects in Southern Sĕlangor, the Nĕgri Sĕmbilan, Malacca, and part of Pahang.

This last sub-division runs along the borderland between Sakais and Jakuns: to the south and south-east of it come the more Malayan Jakun dialects of Johor and the neighbouring territories, and it is to be observed that the Bĕsisi group, itself, though remarkable for the purity with which it has preserved the Mon-Annam numerals, contains a considerable Malayan ele-

x. Selangor Journal (1895) Vol III pp. 244, 245.

ment. Similarly one of the chief differences between the Sĕnoi and the Tĕmbe' groups is that the latter has more in common with Semang than the former. The purest Sĕmang appears to be spoken in Central and Northern Kĕdah and the adjoining States of Raman and Ligeh, and the purest[y] Sakai in South-eastern Perak, between Sungei Raya and Ulu Slim, and in the adjoining valleys of Ulu Pahang. Between these centres there is a debatable country in which are to be found more or less mixed tribes speaking mixed dialects partly Sĕmang, partly Sakai.

The author's classification appears to be defective in one point, namely in ignoring the Jakun group of the South of the Peninsula: this group, whatever its origin, is now hopelessly broken down and almost swamped with Malay, but it is of some interest and apparently originally quite distinct from Sakai.

Here we have, however, the first attempt at a systematic grouping of these dialects, and for this the author deserves every credit. He also brings out a most important fact, viz: that, underlying the common Mon-Annam element which apparently runs through practically all these dialects, though in varying strength, and the comparative uniformity of which has led some former writers into the erroneous Pan-Negrito theory,[z] there is in the Sĕmang dialects an alien element, neither Mon-Annam nor Malayan, which may reasonably be assumed to be the remnant of the original speech of the Negritos.

It is a mistake to assert that there are but few words common to Sakai and Sĕmang: the contrary is the case, such words being fairly numerous. But, apart from these, there is a body of words apparently peculiar to Sĕmang and not derived from Sakai or any other known language. It is in these words that the original affinities of the Sĕmang dialects will have to be sought (if indeed it is any longer possible to detect them) and not in the words which Sĕmang has in common with Sakai and

y. I mean pure with reference to Sĕmang and Sakai intermixture only, leaving Malay influence out of the question.

z. By this I mean the notion (of Maclay and others) that the whole of the aborigines are of Negrito origin and that the differences amongst them depend merely, on the percentage of crossing with Malays.

the Mon-Annam languages of Indo-China. The author is fully justified in claiming to have established on purely linguistic grounds the existence of a distinct Semang group of dialects, spoken by and more or less co-extensive with the Negrito tribes of the North of the Peninsula.

It is true that the border lines of language and physique do not quite coincide: there are mixed Sakai-Sĕmang tribes in Northern Perak who speak substantially Sakai dialects, while in Southern Kĕlantan and Trĕngganu there are tribes, described as having the Sakai physical characteristics, whose dialects nevertheless must be classified as Sĕmang. But the great point gained is that there is now proved to be a Sĕmang group of dialects originally distinct from Sakai and retaining a considerable number of words for which no analogues have yet been found elsewhere. Instances of such words are (1) *Kĕto'*, "day," (2) *Kawau*, "bird," (3) *mako*, "egg," (4) *ekob*, "snake," (5) *ek*, "dog", (6) *gus*, *nyus*, "tooth", (7) *chas*, "hand," which are in no way connected with the corresponding Sakai words (1) *jish*, (2) *chim* (or *chep*), (3) *tap*, (4) *taju*, (5) *cho*, (6) *lĕmun*, (7) *tĕk*^{u} (or *tih*). With the possible exception of No. 6, none of the above Sĕmang words appear to be Mon-Annam: while, of the Sakai, Nos 2, 3, 5, 6, and 7 certainly are.

The next section of the paper is occupied with a careful analysis of the mode of formation of the Mon-Annam languages. It is shown that the sounds correspond pretty closely with those of our aboriginal dialects: but the greatest stress is laid on the system of prefixes and infixes. In this place it is hardly practicable to do more than illustrate this point by an example or two, drawn from the author's specimens. Thus in Cambojan, from a word *pĕk*, "to fall to pieces: to split up; division," are derived the following:—

pnēk	"part"
pămpēk	"to divide"
pamnēk	"piece"
prenēk	"piece"
prapēk	"division"

where the persistence of the root (here shown in italics) is clearly seen in spite of the apparatus of prefixes or infixes added to it. Another similar case is:—

kāt	"to cut off"
khnāt	"measure"
kŭmnāt	"piece"
thkāt	"pain"
tămkāt	"pain, suffering."

Analogous, though less elaborate, formations occur in several of the other Mon-Annam languages, and this system, it must be admitted bears a strong resemblance to the mode of formation of the aboriginal dialects of the Peninsula.

It must, however, be borne in mind that it also finds parallels in the Malayan family, some members of which (e.g. the Philippine languages) have carried it to an even higher stage of complicated development. In fact the relation between the Malayan and Mon-Annam families in this particular are very puzzling: there is so much similarity in their structure and so little, relatively speaking, in their material or lexicographical elements. I suppose it may be regarded as certain that these two families of speech formerly bordered on one another in Southern Indo-China (and possibly in the Peninsula too) and, it would seem that while they were in contact the one group in some way exercised a profound influence on the other, probably in the way, mainly, of the Mon-Annam group absorbing Malayan elements, both material and formal. This makes it doubly difficult, in the case of the aboriginal dialects of the Peninsula which must have been evolved somewhere near the border line of these two families, to decide to which, if either, of them they originally belonged, seeing that the mode of formation in both is so very similar. In the apparent absence of suffixes and in some other respects, however, it must be admitted that the aboriginal dialects offer more analogy to the Mon-Annam than to the Malayan family.

After analysing these formal elements, the author runs through the various parts of speech in the Mon-Annam languages

and compares them with the corresponding ones in the aboriginal dialects, so far as the materials admit of such comparison. The upshot of the matter is that, in his view, on grounds of phonology, structure, and similarity of pronouns, demonstrative adverbs and numerals, as well as the number of other words already alluded to, the Sakai and Sĕmang dialects are to be considered as essentially related to the Mon-Annam family. Further the author holds that, on anthropological grounds, the Sakais are to be considered as genuine members of the Mon-Annam group of races, and therefore that their dialects are not an acquired form of speech but represent their own original language.

This latter point is, unfortunately, very slightly handled. The author rests it upon (1) the dolichocephalic character (2) the dark complexion (3) the non-Mongoloid eyes and (4) the wavy hair of these tribes, characteristics which may be paralleled in certain of the Mon-Annam races.

This matter is, however, involved in great obscurity: for some of these characteristics appear to be absent in some of the Mon-Annam races. The Peguans and Cambojans appear to be decidedly Mongoloid in type, though with a difference:[a] and the author's view requires us to believe that this is due to crossing with a Mongoloid strain which has obliterated their genuine original characteristics, while these have been retained in relative purity by some of the wilder tribes. The thing is possible. One knows that in Indo-China there has been an enormous amount of crossing of races, and it is conceivable that a slight strain of the strong Mongoloid type (which, as one sees in Straits Eurasians, is very persistent even when present in small percentages) might have modified the physical characteristics of the civilized members of the Mon-Annam stock (after the wild tribes had parted off from it) without seriously affecting their languages.

In the case of the Negritos the matter is not susceptible of the same explanation, and the author's view is that the Sĕ

a. I am assured by a Peguan that he can distinguish his own people from the Burmese by their more oval faces and more prominent (almost European) noses; and that wavy hair occurs, though rarely, amongst them.

mangs have substantially given up their own languages and now speak dialects imposed upon them by a Mon-Annam race, that is presumably by their neighbours the Sakais, although they have preserved a good many genuine old Sĕmang words.

The collection and analysis of new materials will show whether these conclusions are tenable. Personally I still incline rather to the view, suggested in a former number of this Journal, that most of the Mon-Annam words in these dialects have been imposed from without by the influence of a Mon-Annam race of higher civilization; and I think that the curiously pure form of the numerals in the otherwise mixed group of dialects to which Bĕsisi belongs supports this view. It would not however be inconsistent with this idea to hold that the Sakai dialects are also of Mon-Annam origin, though much more distantly related to the parent stem: and that would perhaps account for the divergence of the Sakai numerals from the normal type. In that case we should have two waves of Mon-Annam influence in the Peninsula, as well as two of Malayan, and the analysis of the dialects would be somewhat as follows:—

I. Common elements running through practically all the dialects—

(1) Malay;
(2) Mon-Annam of the purer type;
(3) Malayan, other than Malay.

II. Separate original elements.

(4) In Sĕmang: the original language of the Negritos, whatever that may have been (possibly akin to Andamanese?)
(5) in Sakai: a rude Mon-Annam form of speech (?)
(6) in Jakun: Malayan (?) and if so, identical with (3) above (?).

It is evident from what has been said that though some progress has been made in the study of these dialects, much remains to be done; and as the author's main purpose, as stated by himself, is to encourage further research, it is to be hoped that collectors will be stimulated by his valuable paper, and will take the matter seriously in hand. Above all it is absolutely necessary to obtain a large number of genuine sentences, as

actually spoken by the aborigines: mere lists of words have their value, but the only chance of getting an insight into the grammar of a language lies in the collection and analysis of sentences, and that is now the most urgent *desideratum* in connection with these dialects. Such work can only be done properly by men on the spot and thoroughly conversant with local circumstances, and the task should be undertaken at once, before the imminent extinction of these dialects makes it for ever impossible. In view of the high value, from a scientific point of view, of such researches (which is attested by the interest taken in them by a scholar of European reputation like the author of the paper I have attempted to review) I venture to express the hope that the Governments of the Straits Settlements and the Native States will follow the good example, in these matters, of the Indian Government and will give some assistance, or at least encouragement, towards a systematic linguistic survey of the Peninsula on the lines of the Linguistic Survey of India.

The Contents of a Dyak Medicine Chest.

By Bishop Hose.

A few days ago I was in the upper part of the Saribas river, the home of the race once celebrated throughout Malaya for daring deeds of piracy. My companion was the Rev. William Howell, the joint author with Mr. D. J. S. Bailey of 'A Dictionary of the Sea-Dyak Language,' and an authority on all subjects connected with the religious and other customs of that people. We had ascended the Padih, an affluent of the main river, to the village of Kundong, where we were going to spend the night in the Dyak house, of which Brok is the *tuai*, or head-man. The house is of moderate length, about twenty doors; and as usual the apartments of the *tuai* are near the middle of the building. There we were hospitably installed on the *ruai*, or undivided hall, (sometimes described as a verandah), which extends throughout the whole length of a Sea-Dyak house, and occupies about half of its area. The good mats were brought down from the *sadau*, or loft, and spread for us; the rare luxury of a chair was provided for me and there we talked, and taught, and answered questions, and dispensed medicines, while the inhabitants of the other rooms gathered round us, as well as the occupants of our host's private quarters. There also we ate, and there we slept when the kindly people would at last consent to our going to bed.

The majority of the 'rooms,' i. e. separate tenements, in this house are inhabited by Christians of long standing, but there are a few who have not yet come in. Amongst them is a *Manang*, or Doctor of Magic, named Dasu, who has a large practice in the neighbourhood. I was anxious to interview him in order to get some information that I wanted for the purpose of comparing the original spiritual beliefs of the Borneans with those that underlie the Mohammedanism of the Malays of the Peninsula. I was also desirous of ascertaining how far the methods of the

Dyak *Manang*, when undertaking to cure diseases, resembled those of the *Pawang* and *Bomor*, his Malay confréres.

At our invitation Dr. Dasu came out of his room readily enough, and sat down with us to chat and smoke a cigarette. He talked freely and intelligently about such matters of general interest as happened to be broached, especially the late expedition against the turbulent people of the Ulu Ai, and the terrible epidemic of cholera which was just passing away. But as soon as we began to give the conversation a professional turn, and speak of the practice of medicine by the native doctors of the Saribas, he put on a look of impenetrable reserve, and could hardly be persuaded to speak at all. There is reason to believe that this was chiefly owing to the presence of Howell. He has succeeded in winning the confidence and affectionate regard of Dyaks to an unusual degree, but he is unpopular among the *Manangs*. His teaching has led people to think for themselves, and wherever he goes the business and the gains of the village doctor shew a tendency to decrease. Moreover several of the fraternity have submitted to his influence, abandoned their tricks, and taken to honest farming. It is known too that some of these have surrendered their whole stock of charms to my friend, and have also made dangerous revelations, whereby the profession has been much discredited.

So Dr. Dasu was only with great difficulty induced to impart to us his knowledge. He told me after more confidential relations had grown up between us, that he suspected me of an intention, by some means or other, to get possession of his precious *materia medica*, and so deprive him of his means of living. However his fears were removed by repeated assurances that it was information only that I wanted, and that I was consulting him just because I preferred to get it direct from a professor of repute, rather than trust to reports received from white men. At length we persuaded him to be gently catechised. I got some precise answers to my questions respecting certain articles of Dyak belief which had been variously defined by different investigators, and about which my ideas had been a good deal confused. But those matters are not the subject of this note. It is the concluding incident of the rather prolonged interview that I propose to describe.

We had talked to one another so pleasantly and frankly that I thought I might ask Dasu as a great favor to show me his *Lupong*, or Medicine Chest, and the charms of power which it contained. It was quite evident that this aroused his suspicions again, and he retired within himself as before. But the principal people of the house, who were sitting by us, urged him to consent, and, as old acquaintances of mine, assured him of my good faith. So he was at last persuaded, and went to his own room to fetch the treasure.

As I have said, the good mats of the household, as is usual when it is intended to show respect to a visitor, had been taken down for our accommodation from the place where they are stored. But we now saw that the most valued of them all had been held in reserve. This, which was made of fine and very flexible rotan, the latest triumph of the skill and industry of our courteous hostess Ipah, Brok's wife, was now handed down and spread in front of us for the reception of the great man and the mysterious implements of his profession. After some considerable delay, probably intended to excite our curiosity the more, he appeared and sat down on the mat prepared for him: a subdued murmur of applause and satisfaction greeting him as he took his seat.

A Manang's *Lupong*, or case for holding his charms, may be almost anything. Sometimes it is a box, sometimes a basket, sometimes a bag. In this instance it was an open-mouthed basket made of thin shavings of bamboo, hung round the neck of the owner by a strip of bark.

Before beginning the exhibition Dasu made a little formal speech, in which with much show of humility, he spoke in depreciation of his own powers and knowledge, and of his collection of remedial charms, as compared with those of other members of the profession elsewhere. These remarks were of course received with complimentary expressions of dissent from the audience: and then at last the contents of the basket were displayed before us. They were tied up together in a cloth bag, the most highly prized being further enclosed in special receptacles of their own, such as a second cloth covering, a little bamboo box with a lid, or a match-box. They were ceremoniously brought out and placed side by side on the mat

of honour. I was then invited to handle and examine them, and the name and use of each were told me without any fresh indication of unwillingness. This is a list of them.

i. *Batu bintang*, or Star-stone; a small transparent stone rounded by the action of water till it was almost spherical, with a rather rough surface. The *Manang* looked upon it as his badge of authority, and told the following story of the way he became possessed of it. Many years ago, in the interval between harvest and the next seed-time, he was working as a cooly in Upper Sarawak. There he had a dream in which he was visited by the being whom he looks upon as his guardian-spirit. As in all cases when this spirit has had any communication to make to him, it appeared in the form of a tortoise. It told him that he must forthwith put himself under instruction in order to be qualified for the office of a *Manang*: and that if he neglected this command all the spirits would be angry, and death or madness would be the penalty. When he awoke he found the *Batu bintang* by his side, and had no doubt it was the gift of the spirit. Accordingly he did as he was bidden without loss of time. He acquired the professional knowledge and the stock in trade which were necessary, and was at last duly initiated with all the proper rites and ceremonies.

ii. *Batu krat ikan sembilan*, or The petrified section of the Sembilan fish. This was a curious object which I could not quite make out. It was oblong in shape, about two inches long, one inch broad, and half an inch thick in the middle, but getting suddenly thinner towards the two edges till it became not more than $\frac{1}{16}$ of an inch. The thick part was hollow, having a large oval-shaped perforation going through it. It resembled a section from the middle of a large winged seed, but heavy for its size, and feeling like stone. I could not of course test this by cutting or scraping. When used it is soaked for a time in water; the water is then given to the sick man to drink, or is rubbed gently upon the part of his body which is affected.

iii. *Batu lintar*, or Thunder-bolt: a small dark-coloured stone, about an inch and a half long, and a quarter of an inch thick at the base, tapering to a sixteenth of an inch at the point; curved and rather like a very small rhinoceros horn, and highly polished. It was probably the same kind of stone as that of

which the stone implements found in the Malay Peninsula are made, which are also called *Batu lintar*. It is pressed firmly against the body wherever pain is felt.

iv. *Batu nitar*, another name for Thunder-bolt: a minute four-side crystal, half an inch long and about two lines thick. A charm to be used only in extreme cases. It is dipped in water and then shaken over the patient. If he starts when the drops of water fall upon his body he will recover, otherwise he will die.

v. *Batu krang jiranau*, or Petrified root-stock of *jiranau* (a Zingiberad ?). They told us this is the Dyak name of a kind of wild ginger. The word is curiously near to *Jerangau* or *Jeringu*, which Ridley says is Acorus calamus: "a plant much used by native medicine-men," (Wilkinson, Malay-English Dictionary.) The thing so called was possibly part of the back-bone of some animal, bent double and the two ends tied together, each vertebra brown and shining after long use. A charm for dysentery and indigestion, and also for consumption. It is dipped in oil, and rubbed on the patient's body in a downward direction.

vi. *Batu ilau*, or Sparkling stone, also called *Batu kras*, or the hard stone. A six-sided crystal, two inches long and three quarters of an inch thick. One end appeared to have been formerly stuck into some sort of handle, as it was covered with *malau*, or lac. This is the indispensable sight-stone to be looked into for a view of that which is future, or distant, or otherwise invisible to ordinary eyes. It is specially used by *Manangs*, for discovering where the soul of the sick man, wandering away from the body, is concealing itself; or for detecting the particular demon who is causing the illness.

There were also, jumbled up together at the bottom of the bag, a number of tusks of wild boar, pebbles, and other rubbish, but these were pronounced to be *utai ngapa*, things of no importance. One article that we hoped to find was absent. Dasu said he should be glad indeed to have it, but it had never come in his way. It is the *Batu burung endan*, or Pelican stone. He explained to us that this is a stone which has the magical power of securing the presence and cooperation of a spirit who dwells in the form of the *endan*, (pelicanus malaccensis). When the *Manang* is seeking to enter *Selayan*, the Spirit world, in search

of the errant soul of a sick man, this demon can ensure to him a swift and unimpeded passage thither and back again.

While Dasu was telling us the story of his vision of the Tortoise spirit who gave him the *Batu Bintang* I watched his face carefully for any sign that he believed, or did not believe his account. I could not be sure : but I am inclined to think he did not. He seemed relieved when we had finished our examination of his possessions, and he could pack them all up and carry them off to the security of his own dwelling.

Several similar collections of charms have at different times been given to me, obtained from Manangs who have become Christians but it was particularly interesting to me to have a set actually in use exhibited and explained by their owner, and I have thought that a description of them might possibly have some interest for other Members of the Society.

New Malay Orchids.

By H. N. Ridley.

The following new orchids mostly from the peninsula have been obtained since the publication of the Orchids of the Malay Peninsula in the Journal of the Linnean Society Vol. XXXII, p. 213.

In working up the group for the Flora of the Malay Peninsula I find we have as at present known 530 species belonging to 87 genera, and doubtless there are many more to be discovered especially in the northern districts, and on the hills of the east of the Peninsula. I have added a few descriptions of new species also from Sumatra, the orchid flora of which is really very little known, though the more showy kinds have been exported thence for many years.

Liparis atrosanguinea, n. sp. Stem stout sheathed 4 inches long tall, leaves ovate lanceolate acute crisped 8 inches long by three inches wide or less, scape stout over a foot tall. Raceme lax many flowered. Bracts very small ovate lanceolate, ovary and pedicel 1 inch long twisted, and the ovary with sinuate ribs. Flowers as large as those of *L. venosa* entirely deep red purple. Sepals linear obtuse revolute. Petals much narrower. Lip orbicular oblong $\frac{1}{2}$ inch long subacute denticulate with two short semicircular lamellæ at the base. Column arched with narrow wings.

Perak on the Gap on the Thaiping hills at 4000 feet elevation, (Curtis and Derry.)

Allied to *L. venosa*, Ridl., but with a broader lip and deep purple flower. A really beautiful plant.

L. vittata, n. sp. Pseudobulbs conic crowded short 1 inch long. Leaf lanceolate acute 5 inches long $\frac{3}{4}$ inch wide. Scape 6 inches long. Flowers numerous $\frac{1}{4}$ inch across. Sepals lanceolate, petals linear all white. Lip entire,

oblong obtuse white with a central crimson bar. No calli. Ovary and pedicel $\frac{1}{4}$ inch long. Column straight. broadened at the base.

Sumatra, Indragiri (Curtis). Flowered in Penang Gardens.

A pretty little plant of the *Coriifoliae* section, somewhat resembling *L. lacerata* Ridl., inhabit, but the lip is quite entire, and very differently colored.

Platyclinis odorata, n. sp. Pseudobulbs cylindric tapering $2\frac{1}{2}$ to 3 inches long leaf lanceolate subacute petiolate blade 9 inches long $\frac{3}{4}$ inches wide, petiole 2 inches long slender. Raceme nodding graceful one foot long, lower half nude slender. Flowers greenish white sweet-scented $\frac{1}{4}$ inch long numerous bracts lanceolate, acuminate longer than the shorter ovary, Sepals and petals lanceolate acuminate acute. Lip entire tongue-shaped obtuse minutely pubescent keels 2 nearly the whole length of the lip. Column rather short with broad wings, arms free from a little below the stigma as long as the hood linear apex soothed, hood of columns large toothed anther with a short broad beak.

Perak (Curtis, No. 2854).

Dendrobium viridicatum, n. sp. Stem rather slender flexuous over a foot long. Leaves lanceolate acute $2\frac{1}{2}$ inches long, $\frac{1}{2}$ inch wide sheaths $\frac{1}{2}$ inch long. Flowers borne on leafless stems numerous in very short racemes of 2 or 3 flowers, peduncles $\frac{1}{2}$ inch long, bracts very small ovate sheathing, pedicels $\frac{3}{4}$ inch long. Flowers $\frac{1}{2}$ inch long light green. Sepals lanceolate acute, laterals broader, mentum very short blunt. Petals broader oblong lanceolate. Lip entire lanceolate acute column short with erect arms.

Perak, at Ipoh (C. Goldham.)

This seems as nearly allied to *D. macrostachyum*, Lindl., as to any other species.

D. Calicopis, n. sp. Stems slender over a foot long internodes $\frac{1}{2}$ to 1 inch long. Leaves lanceolate acuminate acute,

3 inches long $\frac{1}{2}$ inch wide. Flowers three or four on a short peduncle $\frac{1}{2}$ inch long, pedicels with ovary $\frac{1}{2}$ inch long, flowers an inch across, sepals ovate obtuse, laterals narrower subacute, mentum as long cylindric subacute. Petals broader elliptic obtuse, all white tinted with rose, lip entire broadly oblong truncate apex bilobed, lobes short rounded, with 4 raised veins in the centre two thick in the centre and two thinner outside all white with a rosy spot on the tip. Column short and thick enlarged at the stigma arms erect both like crimson. Anther ovate pink large.

Lankawi Islands, (Curtis).

This belongs to the *Pedilonum* section and is allied to *D. hymenopterum*, Hook. fil. which grows in Kedah. The flowers though few and rather fugacious, are very pretty the deep crimson of the tip of the column, contrasting well with the rosy white of the rest of the flower.

D. tenuicaule, n. sp. Stems very slender weak, a foot long. Leaves narrow linear lanceolate acuminate 3 inches long $\frac{1}{4}$ inch wide, sheaths one inch long. Flower solitary large, pedicel and ovary slender $\frac{1}{2}$ inch long. Upper sepal ovate acute, mentum very long cylindric apex decurved acute $\frac{3}{4}$ inch long. Petals broadly ovate all pink darkest at the tips. Whole flower $\frac{3}{4}$ inch across. Lip claw very long narrow lateral lobes broad up curved, mid lobe short ovate apex bifid, edge crisped, white with a central pink line. Column short with a very long foot, arms toothlike erect. Anther margin pubescent.

Lankawi, Ayer Hangat (Curtis).

D. bifidum, n. sp. Plant with the habit of *D. flabellum*, stems a foot or more long slender, pseudobulbs oblanceolate flattened $1\frac{1}{2}$ inch long, 2 inches apart. Leaf broadly lanceolate ovate obtuse 5 inches long 2 inches wide. Bracts lanceolate acute red. Flowers 1 or 2 open at a time, ovary and pedicel $\frac{1}{2}$ inch long. Sepals and petals linear oblong acute recurved yellow with red spots, petals a little smaller, mentum acute. Lip longer than

the sepals, claw narrow linear edges and ridges crenulate, apex with two narrow cuneate truncate labels half as long as the claw, white yellowish at the tip column stout conic, as long as the foot. Anther oblong-truncate in front.

Lankawi Islands (Curtis).

One of the *Desmotrichum* section resembling *D. flabellum* but remarkable for the terminal lobe of the lip formed of two narrow cuneate truncate lobes.

Bulbophyllum variabile, n. sp. Rhizome stout woody, pseudobulbs curved 3 inches long. Leaf elliptic ovate acute 6 inches long, 2 to 3 inches wide, thin by coriaceous, petiole an inch long. Scape from near the pseudobulb stout, red with several sheaths at the base and three or four lanceolate red spotted ones scattered on it. Bracts large lanceolate acute spotted red half as long as the ovary. Flowers 1 or 2 large show 3 inches across. Upper sepal lanceolate acute, laterals falcate. Petals lanceolate nearly as long all yellow with red dots. Lip tongue-shaped recurved with a broader base, short, apex blunt yellow with red spots. Column short, foot twice as long, apex free, arms short rounded.

B. Reinwardtii, Hook. fil. Fl. Brit. Ind. V. p. 754 (not *B. Reinwardtii*, Rchb. fil. *Sarcopodium Reinwardtii*, Lindl.)

Thaiping Hills on trees and rocks; collected by Mr. Curtis and myself; and at Gunong Batu Putih, by Wray, 1122.

There are two colour forms of this, one as described above, the other has the sepals and petals crimson, with red spots at the base; lip dark crimson, column yellow with crimson spots. Both forms are very beautiful and attractive plants, but like so many of these large Bulbophylla very troublesome to grow.

B. pustulatum, n. sp. Stem stout crinite, pseudobulbs crowded oblong conic half an inch long. Leaf elliptic lanceolate acute four inches long by one inch wide, petiole $\frac{1}{2}$ inch long. Flower solitary an inch across, pedicel slender $\frac{1}{2}$ an

inch long. Upper sepal lanceolate acute, laterals much broader ovate obtuse. Petals lanceolate acute nearly as large as the upper sepal. All yellow with red stripes. Lip fleshy ovate cordate obtuse dark maroon colored $\frac{1}{4}$ inch long with 2 raised lobes at the base, and a mass of papillæ on the disc. Column short with a long foot, the apex free, arms triangular oblong obtuse. Climbing on trees on the lower slopes of the Mount Ophir range.

B. tenerum, n. sp. Rhizome slender filiform pseudobulbs ovoid $\frac{1}{4}$ inch long about $\frac{1}{4}$ inch apart. Leaf oval half an inch long not petiolate. Scape slender red 2 inches tall with a few bracts at the base. Flowers 3 at the top of the stem $\frac{1}{4}$ inch long, shortly pedicelled. Upper sepal lanceolate acuminate, laterals much longer slightly gibbous at base, purple bases green. Petals ovate elliptic much shorter green. Lip small recurved acute purple. Column thick curved green foot as long purple, arms long linear curved acute.

Lankawi Islands (Curtis).

Very small few-flowered species allied to *B. hirtulum*, Ridl.

B. cincinnatum, n. sp. Very small plant pseudobulb very small. Leaf elliptic obtuse closely nerved, 4 inches long 2 inches wide, scape very slender 2 inches long. Flowers $\frac{1}{6}$ inch long, 2 on the apex of the scape. Bracts ovate very short ovary and pedicel $\frac{1}{8}$ inch long. Sepals lanceolate subacute nearly equal brown, hairy. Petals brown linear oblong falcate hairy. Lip obtuse with long white hairs. Column short foot as long, arms short.

Perak, Batu Tujoh (Curtis).

This is another of the small species with a few small flowers on the end of a slender scape. The curious white curly hairs on the lip are perhaps its most striking characteristic.

B. brevipes, n. sp. Rhizome woody, pseudobulbs $\frac{1}{2}$ to $\frac{3}{4}$ an inch apart cylindric conic curved. $\frac{1}{2}$ inch long. Leaf elliptic shortly petioled one inch long $\frac{1}{4}$ to $\frac{1}{3}$ inch wide,

apex subacute coriaceous; raceme very short about 6 flowered $\frac{1}{4}$ inch long. Flowers pale yellow. Bracts lanceolate much longer than the ovary. Sepals subequal lanceolate acuminate $\frac{3}{8}$ inch long. Petals about $\frac{1}{3}$ of the length elliptic blunt. Lip shorter curved thick fleshy deeply grooved base clawed, with two strongly raised ridges or wings from the base. Column short and thick with a short foot, arms erect narrow acuminate.

Perak, Bujong Malacca (Ridley), Scortechini drawing 176. Allied to *B. Gamblei*, Hook. fil., but with a much shorter peduncle.

B. ochranthum, n. sp. Pseudobulbs densely crowded oblong conic $\frac{1}{4}$ inch long. Leaf linear-lanceolate acute base narrowed $1\frac{1}{4}$ inch long, $\frac{1}{6}$ inch wide. Scape nearly as long flowers 5 or 6 crowded in a head about $\frac{1}{4}$ inch long. Bracts lanceolate shorter than the ovary; upper sepal narrow linear-lanceolate acuminate, laterals one quarter longer, all white with yellowish tips. Petals less than half as long as the upper sepal lanceolate obtuse white. Lip small tongue shaped acute recurved yellow. Column thick foot shorter, arms narrow linear acute curved.

Perak, Thaiping Hills, at 3000 to 4000 feet elevation (Curtis).

B. (*Cirrhopetalum*) *Curtisii*, n. sp. Rhiome slender creeping, with ovoid conic pseudobulbs $\frac{3}{8}$ inch long, $\frac{1}{2}$ an inch apart. Leaf elliptic oblong obtuse thick 1 to $1\frac{1}{2}$ inch long, half an inch wide, very shortly petioled. Scape slender 2 to 3 inches long with a lanceolate-pointed sheath in the middle. Flowers about 5 crowded at the top. Bracts lanceolate acuminate. Upper sepal triangular lanceolate laterals quite free, linear flat narrow $\frac{3}{8}$ inch long yellow. Petals falcate lanceolate glabrous, brown. Lip small tongue-shaped fleshy curved. Column broad arms triangular short.

Dindings. In Mangrove swamps (Curtis).

B. perakense, n. sp. Pseudobulb conic $\frac{1}{4}$ inch long. Leaf elliptic narrowed at the base 2 to 3 inches long, $\frac{1}{2}$ inch wide,

coriaceous, scape 3 to 4 inches long fairly stout; flowers crowded numerous glabrous; bracts lanceolate acuminate. Upper sepal ovate acute, laterals $\frac{3}{8}$ inch long connate for half their length, tips acuminate. Petals nearly as large as the upper sepal, ovate lanceolate acute. Lip tongue-shaped channeled above, but little curved; column arms triangular obtuse erect broad.

Perak, on the Waterloo Estate near Kwala Kangsa. (Sir Graeme Elphinstone).

Dendrochilum angustifolium, n. sp. Rhizome long woody terete, pseudobulbs 1 to $1\frac{1}{2}$ inch apart or closer, subcylindric $\frac{1}{2}$ to $\frac{3}{4}$ inch long. Leaf narrowly linear lanceolate 2 inches long, $\frac{1}{4}$ inch wide blunt; mucronulate, narrow at the base, scapes solitary or several together on a stout short peduncle from the base of the pseudobulbs with numerous basal sheaths 3 to 4 inches long. Flowers numerous greenish white $\frac{1}{8}$ inch long. Bracts ovate subacute half the length of the ovary, rachis scabrid. Sepals linear lanceolate. Petals narrower. Lip narrow lanceolate to obtuse with 2 thick ridges at the base and a lower one between them. Column short upper margin hooded minutely toothed, arms linear from near the base. Capsule half-an-inch long subglabose ovoid three-angled.

Selangor, Bukit Hitam, (Kelsall).

Pahang, K'luang Terbang, (Barnes).

D. ellipticum, n. sp. Rhizome long woody branched yellow, pseudobulbs conic-cylindric curved $\frac{3}{4}$ inch long. Leaf thinly coriaceous elliptic oblanceolate obtuse 3 inches long by one inch wide. Scapes 3 inches long with large sheaths at the base; bracts ovate acute nearly as long as the short ovary. Flowers $\frac{1}{8}$ inch long rather fleshy. Sepals lanceolate acute, apex thickened terete. Petals similar but narrower. Lip pandurate obtuse pustular, basal ridges obscure forming a pustular mass. Column rather long, hood with three teeth, arms from about half-way up the column, linear longer than broad.

Singapore, Sumbawang, (Ridley 6536).

A curious little species on account of its pustular lip.

It is interesting as being the only low country species, the rest being all mountain plants.

Eria pendula, n. sp. Stems terete 2 or 3 feet long $\frac{1}{4}$ inch through leafy. Leaves narrowly linear lanceolate acuminate 4 inches long $\frac{1}{4}$ inch wide sheaths dilate upwards $\frac{3}{4}$ to 1 inch long. Racemes lateral hardly $\frac{1}{2}$ inch long with several lanceolate acute red brown bracts half an inch long. Flower solitary nearly an inch across white. Pedicel and ovary $\frac{1}{2}$ inch long red. Upper sepal oblong obtuse laterals broadly ovate reflexed, mentum short very broad and blunt. Petals oblong rounded as broad or broader than the upper sepal. Lip shortly clawed broad obovate rounded, side lobes indistinct, midlobe longer broad keels 2 curved plates on the disc. Column stem foot long.

Selangor at the Kwala Lumpur Caves (Kelsall).
Perak (Scortechini, drawing).
Borneo Sarawak.

Eria (*Trichotosia*) *cristata* n. sp. Stem a foot tall, leaves lanceolate acuminate oblique 3 inches long $\frac{1}{2}$ inch wide, coriaceous almost glabrous above hairy beneath sheaths glabrescent when old, very hairy when young, half an inch long. Racemes short $\frac{1}{4}$ inch long very hairy, lowest bract cup-shaped; upper ones ovate lanceolate acute $\frac{1}{2}$ inch long much longer than the ovary; flowers 2 to 3 half an inch long. Sepals lanceolate acute covered with red hair, mentum as long blunt; petals linear obtuse much narrower, lip with a very long claw pubescent at the base spathulate tip rounded retuse, glabrous except for the ends of the three raised veins which are covered with short clubbed hairs; column base pubescent.

Penang, and Lankawi Island at Terutau, (Curtis 1696).

E. rotundifolia, n. sp. Stems slender forming a matted mass. Leaves in small tufts on short stems $\frac{1}{8}$ inch long, fleshy thick obovate blunt hairy $\frac{1}{4}$ inch long. Flowers $\frac{1}{4}$ inch long on a very short pedicel solitary with 2

cupular bracts with a short point, upper one longer than the ovary; upper sepal oblong ovate, laterals much broader, mentum rather large rounded. Petals oblong obtuse; all greenish yellow, billows on the outer serface. Lip oblong obtuse, tip broader three-lobed; side lobes small, midlobe rounded, all denticulate greenish yellow with a central raised bar ocreous, and some purple spots on each side, column short foot long olive green; anther orange conic one-celled, apex with a short blunt point, front edge emarginate. Pollinia 8 subequal.

Penang, above the Waterfall (Curtis).

A very curious plant forming large masses of small tufted leaves something like those of *Dischidia mummularia*. It is allied to *E. dasyphylla*, Par., a native of India, and *E. microphylla*, Bl. of Java. From the former it differs in its shorter rounded leaves, much shorter peduncle and longer mentum. The lip is broader at the tip and 3-lobed, and is differently colored. The anther is also quite different in shape having a kind of blunt conic boss on the top.

Ceratostylis puncticulata, n. sp. Stems slender weak curved to 3 4 inches long but little branched, sheaths short ampliate, mucronulate, minutely punctate. Leaves narrowly elliptic lanceolate blunt. petiolate 2 inches long $\frac{1}{4}$ inch wide. Flowers in pairs on short slender pedicels with minute bracts. Sepals lanceolate acute. Lip spathulate with an acute thickened tip.

Perak, Thaiping Hills at 5000 feet elevation.

Calanthe mutabilis, n. sp. Habit of *C. veratrifolia*. Leaves broad ovate lanceolate acuminate 12 inches long 4 inches wide. Scapes stout 20 inches tall sometimes branched, raceme about 6 inches long-many flowered. Bracts persistent oblong obtuse $\frac{1}{4}$ inch. Pedicels slender $\frac{3}{4}$ inch long. Upper sepal broadly lanceolate ovate laterals lanceolate acute $\frac{1}{4}$ inch long. Petals narrow linear. All white. Lip claw very short with 3 large lanceolate papillæ and a number of small ones, terminal lobe broad $\frac{1}{4}$ inch across reniform bilobed at the apex, white with claw and

base of midlobe yellow, at first, becoming ocreous orange after one or two days and fading red orange. Spur very slender an inch long obtuse decurved. Column thickened round the stigma, anther shortly bluntly beaked.

Sumatra, Deli, imported with *C. veratrifolia* and cultivated in the Botanic Gardens, Penang. Fl. September.

This plant Mr. Curtis says is indistinguishable from *C. veratrifolia* in leaves and habit. The flower is however quite different. The broad kidney-shaped bilobed lip, colour changing from white tinted with lemon yellow at the base to dull dark orange red is very striking. The branched scape a most unusual character in Calanthe is not apparently rare, as it has been produced in two out of three plants cultivated by him.

C. albo-lutea, n. sp. A large plant with broadly lanceolate acute leaves 2½ feet tall, 4 inches wide with strong ribs petiole stout 8 inches tall, scape over 1½ feet long, stout. Bracts caducous, flowers about half an inch across, pedicel and ovary ¼ inch long. Sepals and petals short broad ovate acute white. Lip 3 lobed white with yellow base, lobes very short falcate acute, midlobe obovate rounded reniform broad, bilobed, calli 2 short semiovate ridges at the base, spur shorter than the pedicel thick blunt clubbed curved.

Perak (Scortechini), Bujong Malacca (Ridley), Larut Hills (Derry).

C. aurantiaca, n. sp. Rhizome fairly stout, leaves narrow lanceolate acuminate 12 inches long ¾ inch wide, petiole 3 inches long. Scape slender a foot tall with a large lanceolate sheath towards the base. Bracts caducous. Flowers ⅓ inch across orange. Pedicel and ovary slender ½ inch long. Sepals ovate apiculate ½ inch long. Petals much broader. Lip narrow, side lobes subtriangular ovate, midlobe narrow linear oblong obtuse red. Keels 2 short semiovate, spur slender sigmoid blunt. Rostellum long beaked.

Perak, Bujong Malacca (Ridley).

C. microglossa, n sp. Pseudobulb short; Leaves distichous lanceolate acuminate 6 inches long, 2 inches wide. Scape stout a foot tall, with a large swollen sheath. Bracts lanceolate acuminate pale caducous. Flowers small ovary and pedicel ½ inch parts distinct. Sepals ovate acuminate ¾ inch long orange. Petals shorter orbicular ovate rounded. Lip shorter very small scarlet, oblong spathulate base broad narrowed in the middle; apex deflexed with two elevated ridges at base, spur as long as ovary thick scrotiform, rostellum and anther not beaked.

Sumatra, East Coast, (native collector) near *C. Scortechinii*, but with a differently formed and colored lip. It has quite the appearance of *C. curculigoides* at a little distance. It was sent with other orchids from the East Coast of Sumatra by a native and flowered in the Botanic Gardens, Singapore.

Coelogyne densiflora, n. sp. Pseudobulbs long cylindric-conic narrow 4 inches long. Leaves lanceolate acuminate 15 inches long 1¾ inch wide, petiole 2 inches long. Scape pendulous 8 inches long dense flowers numerous smaller than in *C. Dayana*, rachis and ovaries not nigrohirsute. Bracts red brown oblong truncate half an inch long and as wide; sepals lanceolate acute; petals narrower ½ inch long brownish. Lip, side-lobes short acute, apices narrow, outside white, inside brown with white streaks; midlobe orbicular, shortly apiculate, edge white, centre red brown with a large yellow central papillose mass; keels on the disc between the lobes crested. Column hood retuse anther white.

Selangor, on Bukit Hitam, (Kelsall)

C. pallens, n. sp. Rhizome stout, pseudobulbs subcylindric 2 to 3 inches long wrinkled. Leaves 2 elliptic or oblanceolate 3 to 6 inches long 1 to 1½ inch wide petiole 1 inch long. Scape from the top of the pseudobulb, base nude with 1 persistent bract. Raceme 6 inches long flexuous. Flowers 2 inches across. Sepals lanceolate acute pale green. Petals linear filiform. Lip white lateral lobes

long with subacute long pubescent tips, base saccate midlobe as long, with 2 long sinuous brown keels. Column hood three lobed central lobe long undulate. Anther conic not beaked.

Perak, Thaiping Hills (Curtis). Bujong Malacca (Ridley).

This is closely allied to *C. anceps*, Hook fil. Ic. Pl. 2109 but the scape is terete not compressed and the petals are much narrower.

Saccolabium Machadonis, n. sp. Stems curved slender 12 inches long. Leaves terete recurved 3 inches long $\frac{1}{8}$ inch thick apex pungent. Racemes 2 inches long. Flowers scattered $\frac{3}{8}$ inch long; sepals linear oblong obtuse. Petals narrower all recurved olive yellow. Lip pale violet, side lobes erect oblong truncate, midlobe much longer flat hastate triangular acuminate obtuse spur short curved blunt olive-yellow, upper callus in mouth rounded hemispheric with an anchor-shaped process on the top, lower edge of callus truncate pubescent, lower callus conic ending in a lamina running to the back of the spur. Column short stout sigmoid olive yellow. Anther flattened 1 celled hemispheric, pollinia subglobose on a broad elongate candicle tapering upwards to the point and fixed to the saddle-shaped disc. Rostellum lobes broad deflexed parallel oblong.

Johor. On Gunong Banang, Batu Pahat.

This species is allied to *S. halophilum*, Ridl., but differs in the violet hastate lip and the remarkable callus in the mouth of the spur. It is named after Mr. A. D. Machado with whom I collected the plant which flowered in the Botanic Gardens.

S. rugosulum, nsp. Stem stout 6 inches long. Leaves linear narrowed at the base, apex bilobed mucronate 5 inches long $\frac{1}{2}$ inch wide, sheaths $\frac{1}{2}$ inch long deeply transversely wrinkled. Racemes short $\frac{1}{2}$ inch long stout with a few cup-shaped sheaths at the base. Flowers $\frac{1}{4}$ inch across, on pedicels $\frac{1}{8}$ inch long yellow-spotted with red. Sepals ovate coriaceous. Petals thinner pallid. Lip boat-shaped, side lobes very short oblong, midlobe fleshy

ovate grooved ending in a long slender horn bifid at the tip, spur very short conic blunt. Column large arms rounded.

Kedah, on Kedah Peak.

S. (Cleisostoma) hortense, n. sp. Stem stout 1 to 2 inches long or more. Leaves lorate, coriaceous blunt unequally bilobed 4 to 6 inches long $\frac{3}{4}$ inch wide. Scape erect taller than the leaves, base nude apex racemed or more usually with a few branches. Bracts small ovate. Flowers $\frac{1}{4}$ inch across. Sepals oblong obtuse, laterals broader. Petals narrower yellow with red edges Lip yellow, side lobes small erect with two subacute points, midlobe broader ovate acute, spur scrotiform very broad red, callus in the mouth of the tube a thin lamina bifid at the apex. Column short and broad. Anther broad abruptly truncate beaked; pollinia elliptic, caudicle linear very narrow disc ovoid, rostellum entire. Capsu e elliptic oblong an inch long.

Singapore Jurong; Johor, Tana Runto, Malacca, Sungei Rambai (Derry) Perak (Scortechini's drawings No. 53); Penang, Tanjong Bunga (Curtis 1834). This little plant generally occurs in orchid trees, and I cannot think how it has escaped being described for so long. It grows also in Borneo. Its flowers resemble those of *S. latifolium*, Ridl. *Cleisostoma latifolium* and *C. fuscum*, Lindl., but it has a much smaller stem than that plant and the panicle is much smaller.

S. arachnanthe, n. sp. Stem tall climbing, leaves oblong obtuse 4 inches long $1\frac{1}{2}$ inch wide sheaths $\frac{1}{2}$ inch long. Panicle $2\frac{1}{2}$ feet long with a long nude peduncle purple, branches 3 or 4 inches long spreading. Flowers scattered $\frac{1}{2}$ inch across, pedicels longer slender. Bracts small ovate. Sepals and petals spreading spathulate obtuse, lateral sepals falcate white with purple spots at base. Lip fleshy side lobes indistinct forming a wall round the entrance of the spur, midlobe ovate broad short, spur broad saccate rounded large, all white, callus in the mouth oblong notched. Column short and broad, rostel-

lum short. Anther thin depressed hemisperic. Pollinia 2 globose, caudicle broadly linear, disc half as long oblong.

Perak and Kedah collected by Mr. Curtis from whom I have received specimens and a colored drawing. The habit of this plant is that of a *Renanthera* but the flowers rather are those of a *Sıccolabium* of the section *cleisostoma*

S. patinatum, n. sp. Stem very short hardly an inch long. Leaves 2 to 3 very coriaceous oblong obtuse broadly bilobed 7 inches long by 2 inches wide. Raceme very short rachis stout, flowers about $6\frac{3}{4}$ inch across. Sepals obovate spathulate blunt. Petals narrower yellow with red spots. Lip saccate rounded, no distinct side lobes, terminal lobe ovate triangular entire glabrous blunt all white with violet spots. Column very short and broad at the base pink, no arms, anther obtuse conic in front triangular bifid. Pollinia oblong globose half split, candicle linear, disc oblong hastate. Rostellum bifid. Capsule elliptic narrowed at base 2 inches long.

Pahang, Kota Glanggi (Ridley).

Distrib., Borneo.

This is probably the *S. Calceolare*, collected in Perak by Carter in Fl. Brit. Ind., as it much resembles that species when dry. It differs from *S. Calceolare* in the entire smooth lip.

S. Myosurus, n. sp. Stems short 1 to 2 inches long crowded together and forming a dense mat with copious roots. Leaves lanceolate falcate subacute 3 inches long $\frac{1}{4}$ inch wide, sheaths $\frac{1}{4}$ inch long. Scapes slender 3 inches long scabred at the base, racemes thickened 1 inch long, bracts ovate very numerous blunt. Flowers minute. Sepals lanceolate oblong falcate. Petals narrower, lip side lobes oblong erect, midlobe ovate lanceolate shorter, spur pendulous as long as the ovary. Column short and broad. Capsule cylindric $\frac{1}{2}$ inch long, pedicel $\frac{1}{8}$ inch long.

Pahang at Kwala Tembiling.

A very curious plant, with the habit, foliage and ra-

cemes of a Dendrocolla, but the very minute flowers have the structure of a Saccolabium.

Ascochilus teres, n. sp. Stem 6 inches or more tall slender. Leaves terete acute 4½ inches long ⅛ inch thick, sheaths ½ inch long ribbed and transversely wrinkled. Raceme slender 4 inches long. Flowers few scattered ¼ inch across. Bracts very small ovate, ovary and pedicel ⅜ inch long. Upper sepal oblanceolate hooded; laterals oblong ovate oblique much larger. Petals broadly spathulate oblique shorter. Lip side lobes erect lanceate falcate, midlobe hastate, basal lobes rounded apex subacute spur half the length curved obtuse. Column as long as its foot nearly as long as the petals, arms short and broad.

Johor, Bukit Banang, Batu Pahat, (Ridley).

The habit of this is just that of a *Luisia* or one of the *Saccolabiums* and not at all like the rest of this genus.

A minutiflora, n. sp. Stem very short, leaves linear lanceolate falcate acute, 3 inches long, ½ inch wide or less, sheaths very short. Scape very slender an inch long pubescent; raceme very short. Bracts cucullate ovate. Flowers ⅛ inch across. Upper sepal lorate oblong laterals lanceolate, all keeled, yellow with red spots. Petals obcuneate yellow with a red spot at the base. Lip side lobes large oblong truncate, midlobe very short truncate entire spur short blunt rather thick saccate scrotiform obtuse. Column tall curved slender foot hardly as long. Anther long beaked.

Pahang, Kwala Tembiling.

Sarcochilus virescens, n. sp. Stem very short; Leaves lanceolate subacute 1½ inch long ½ inch wide or less. Raceme an inch long. Bracts ovate, flowers an inch across. Sepals ovate acute. Petals narrower lanceolate. All light green. Lip very short white, side lobes short rounded, midlobe represented by an orange callus, spur short broad conic, column short and thick, foot as long curved. Anther orange beak triangular.

Perak at Tapah. Collected by Mr. Aeria, flowered in the Botanic Gardens in Penang.

Podochilus densifolia. Stems over a foot long covered with close-set distichous leaves oblong obtuse, bases broad, an inch long $\frac{1}{2}$ inch broad, sheaths $\frac{1}{4}$ inch long. Racemes 2 terminal an inch long densely flowered to the base, rachis stout, bracts ovate reflexed. Flowers $\frac{1}{6}$ inch long, white. Sepals ovate obtuse mentum rather long. Petals ovate but little smaller. Lip ovate acute fleshy, an irregular fleshy callus in the middle with a thickened ridge running to the tip. Column short. Rostellum long deeply bifid acuminate. Anther lanceolate subacute.

Pahang, Tahan River, (No. 2370).

This plant has the inflorescence of one of the *P. pendulus* section, and indeed has been referred to that species, but the flowers are quite different and the callus on the lip is rather that of *P. cornutus.*

Zeuxine rupestris, n. sp. Whole plant 6 to 8 inches tall slender, leaves few lanceolate narrow blunt $\frac{1}{2}$ to $\frac{2}{3}$ inch long $\frac{1}{8}$ inch wide, scape slender pubescent. Flowers 2 terminal $\frac{1}{4}$ inch long white. Sepals ovate hairy, petals adnate to the upper sepal. Lip base saccate with 2 linear subulate processes inside, limb clawed with a terete minutely toothed claw blade bifid lobes oblong, truncate. Column short rostellum lobes linear blunt incurved. Capsules erect $\frac{1}{4}$ inch long.

Penang on rocks at the top of Government Hill on the way to Richmond pool, (Curtis 2823). A very slender little white-flowered thing remarkable for the long narrow claw of the lip which thus more resembles that of an Anoectochilus.

Goodyera lanceolata, n sp. Stem slender 9 inches tall. Leaves lanceolate acuminate $1\frac{1}{2}$ inch long nearly $\frac{1}{2}$ inch wide. Scape $3\frac{1}{2}$ inches long pubescent few flowered. Bracts lanceolate accuminate $\frac{3}{8}$ inch long woolly pubescent. Laterals oblique acuminate woolly pubescent reddish. Petals adnate to upper sepal thin glabrous reddish.

Lip base saccate adnate to the column by the edges glabrous within with a raised central keel and a tuft of digitate processes on each side. Apex of lip acuminate subulate column short. Anther very long acuminate. Pollinia ½ inch long clubbed with a pair of caudicles. Caudicles connate about half way down. Rostellum long shortly bifid, lobes acute, stigma large with thin walls.

Selangor at the Gap on the Pahang track, (Curtis). A single specimen only was found. The plant is allied to *G. rubens*, Bl., *G. cordata*, Hook. fil.

Hetoeria parvifolia, n. sp. A slender plant of exactly the habit of *Zeuxine clandestina* Bl. Stem 2 inches long, leaves small lanceolate accute nearly sessile 1 inch long ¼ inch wide, sheaths ¼ inch long ampliate, scape slender pubescent 5 or 6 inches tall with several rather long distant acuminate sheaths. Racème 2 inches long. Flowers very small ½ inch long appressed to the stem. Bracts narrow lanceolate acuminate nearly as long as the ovary, upper sepal adnate to petals ovate acuminate pubescent, laterals lanceolate acute. Lip base saccate with minute cylindric processes inside; apex lanceolate acute, sides at tip involute forming a tube not longer than the sepals. Columu short dilated above. Rostellum arms nearly as long linear truncate. Anther with a long narrow beak.

Penang, Government Hill. I collected this plant at the same time as Mr. Curtis and myself got *Zeuxine rupestris*.

Descriptions of New Genera and Species of Hymenoptera taken by Mr. Robert Shelford at Sarawak, Borneo.

By P. Cameron.

This paper is a continuation of one describing the new genera and species contained in the Sarawak Museum and those captured by Mr. Shelford at Sarawak, published in the Journal of this Society, No. 37, January 1902.

Siricidæ.

Xiphydria erythropus, sp. nov.

Black, the scape of the antennæ and the legs dark red, the wings dark fuscous-violaceous, the nervures and stigma black, the head and thorax closely rugosely punctured, the greater part of the vertex and the upper half of the front broadly; in the middle smooth and shinning, ♂.

Length 16 mm.

Hab. Matang, 3600 feet.

Front coarsely rugosely punctured, the punctures running into reticulations in parts; its centre is furrowed; the furrow is punctured on either side, the punctured band becoming wider towards the apex. On the smooth part of the vertex, at the apex, is a deep transverse furrow; behind, in the centre, is a narrower, shallower longitudinal furrow. Face irregularly longitudinally striated; the clypeus is piceous; its apex is broadly roundly incised. Mandibles opaque, sparsely punctured; their teeth are smooth and shining, large and broadly rounded. Thorax coarsely rugosely punctured: the pleuræ more coarsely than the mesonotum and more or less reticulated; the propleuræ smooths and with the central depression bearing some stout keels. The central lobe of the mesonotum has a deep furrow in the centre which is stoutly transversely striated: on the apex in the centre are 4 longitudinal keels. The fore tarsi and the

apical joints of the posterior are black. Except on the inner sides and apices of the lobes the median segment is closely punctured; the basal 4 segments are broadly furrowed across the base: these furrows are closely longitudinally striated.

Xiphydria melanopus, sp. nov.

Black; the wings fuscous violaceous: the head rugose, the vertex smooth, the thorax coarsely rugosely punctured and reticulated throughout; the lateral and central furrows on the mesonotum wide, closely transversely striated, the lateral curved and becoming wider towards the apex, ♀.

Length 17 mm.

Hab. Matang.

Mandibles at the base closely punctured and thickly covered with white hair. Middle lobe of mesonotum coarsely irregularly reticulated; the lateral lobes on the inner side less strongly and more irregularly reticulated, on the outer almost smooth; the furrows become gradually wider towards the apex. Scutellum rugosely, coarsely punctured, except at the apex, which is smooth and shining; it is longitudinally furrowed down the centre. Abdomen as in *X. erythropus*.

Apart from the difference in colour this species may be known from *erythropus* by the much wider, broader at the apex, more rounded and closely striated middle lobe of the mesonotum, by the front having a large deep round depression and by the thorax being more strongly punctured,

TENTHREDINIDÆ.

Monophadnus trichiocerus, sp. nov.

Black, shining; the clypeus, labrum, the apex of the femora, and the tibiæ, the upper edge of the pronotum and the tegulæ whitish-yellow; abdomen testaceous, darker towards the apex; the wings from the transverse basal nervure fuscous-violaceous, the stigma and nervures black, ♀.

Length 9 mm.

Hab. Matang.

Antennæ short stout; the basal joint testaceous, the apical joint rufous beneath; they are thickly covered with

stiff black hair. Centre of vertex bordered by wide and deep furrows, in front by a narrow oblique one; the front is deeply depressed, narrowly above, widely below. Apex of clypeus transverse. Labrum large, rounded in front. Mandibles pale yellow, rufous at the apex. The apical segments of the abdomen are narrowly edged with black at the apex; they are darker coloured than the basal and have a faint but distinct, violaceous tint. Legs covered with white hair; the apex of the hinder tibiæ black.

Selandria iridipennis, sp. nov.

Dark blue, the labrum, the coxæ, trochanters and the base of the tibiæ broadly white; the front wings fuscous, with a violaceous tint and highly iridescent; the stigma and nervures black; the hinder wings clear hyaline, ♀ and ♂.

Length 9 mm.

Hab. Kuching.

Antennæ thickly covered with stiff black hair. Front and vertex closely and distinctly punctured, the vertex not raised; the lateral furrows shallow, indistinct; on the centre of the front is a large wide fovea almost transverse in front, rounded behind, and having a smaller round fovea on either side. Clypeus closely and distinctly punctured. Labrum smooth. Base of mandibles closely punctured. Legs thickly covered with white hair; the claws bifid. The 1st transverse cubital nervure is widely interrupted in the middle.

CYNIPIDÆ.

Mesocynips, gen. nov.

Abdomen sessile, large, ovate, its middle as wide as the thorax, its basal 4 segments of equal width, the apical 2 longer. Antennæ stout, 13-jointed; they are placed near the top of the head. Eyes ovate, widely separated from the base of the mandibles, the malar space being longer than their length. Clypeus depressed, separated from the face, obliquely narrowed towards the apex, which is transverse. Mandibles stout, broad, bidentate, the teeth broadly rounded. Vertex stoutly, longi-

tudinally keeled; the front being also bordered below by a stout keel. The apex of the pronotum is sharply keeled; this keel is continued down the middle of the propleuræ obliquely, their apex being also keeled. Mesonotum and scutellum stoutly transversely striated. Scutellar fovea large, deep and stoutly keeled in the middle. The metanotum is bordered laterally by a stout keel and outside this, on the pleura, is a stout curved, irregular keel. Radial cellule short, the radius curved not reaching half way to the apex; the areolet is small, elongate, narrow, closed below by a thick pseudo-nervure; the cubitus reaches to the apex of the wing, it really issues from the radius, for a transverse cubital nervure can hardly be said to exist. The costal, median and submedian cellules are all distinct; the externo-median nervure is distinct, the discoidal nervure is distinct and reaches close to the apex of the wing, it is interstitial with the externo-median nervure.

The ovipositor is long and issues from the base of the abdomen, is straight and its sheaths are curved and project; the hypopygium is short and does not reach to the apex of the abdomen. Legs stout, pilose; the front calcaria are curved, the basal joint of all the tarsi is much the longer; the middle 3 are small; the apical large, but not quite so long as the basal one; the claws are large, curved, simple.

This new genus will form a new subfamily of *Cynipidæ*. It has the form of *Cynips* but differs from that in the abdominal segments being of almost equal length, and in the straight, not curved, ovipositor. The subfamily *Ibaliinæ* may be known from it by the long, cultriform abdomen, which has, as in our subfamily, the segments about equal in length. It has the alar nervures better developed than in the other subfamilies and in that respect resembles *Mesocynips*, whose systematic position is probably between the *Ibaliinæ* and the *Cynipinæ*.

Mesocynips insignis, sp. nov.

Ferruginous-yellow, the yellow tint more noticeable on the sides; the flagellum of the antennæ infuscated, paler towards the apex; the mesonotum and the basal half of the scutellum

strongly, sharply transversely striated; the wings dark smoky-fuscous; the base to the transverse basal nervure and above to the base of the stigma bright yellow: the apical nervures fuscous-black; the basal bright yellow, ♀.

Length 10 mm.

Hab. Kuching.

Head shining, sparsely punctured; the middle of the face raised and more closely and distinctly punctured; the face, front, vertex and occiput covered, but not thickly, with longish pale fuscous and white hairs. Apex of the mandibles broadly, deep black. Thorax Smooth and are shining; the pro-and meso-sparsely, the meta thorax thickly covered with long pale hair. Centre of metanotum smooth; the sides somewhat shagreened. Abdomen shining; the back and apical segments covered with long pale fuscous hairs; the penultimate segments punctured; the last much more strongly and deeply punctured. Femora sparsely, the tibiæ and tarsi thickly covered with pale hairs; the claws blackish.

This species is probably identical with "*Cynips*" *insignis*. Smith, described, Proc. Linn. Soc. 1857, p. 117, from Sarawak. It is in no sense a *Cynips* in the modern meaning, and belongs to the parasitic branch of the family. To prevent the making of a synonym I have used Smith's name in case an examination of Smith's type would prove it to be identical with the species I have described.

CHALCIDIDÆ.

Leucospis erythrogastra, sp. nov.

Black, the ventral surface and apex of abdomen rufous mixed with yellow; a large broad mark on the inner orbits, rounded at the top and bottom and roundly curved inwardly on the inner side, a large somewhat heartshaped mark-narrow above incised below–below the antennae, a smaller, somewhat similar mark below it, a line, dilated at the sides, on the base of the pronotum, a slightly broader one, not reaching to the edges, on its apex, 2 oblique irregularly oval marks on the centre of the mesonotum, a longish, broad line on its sides, slightly incised on the innerside, the sides of the scutellum from near the base and

its apex more broadly, a large curved line on the post scutellum, a large mark on the mesopleuræ narrowed and rounded below, its top at the base and apex—the apex more widely—obliquely narrowed, the greater part of the base of the metapleuræ—the mark straight at the base, the apex rounded and its top part wider than the lower, a large curved—its top rounded—oblique mark on either side of the 1st abdominal segment, a broad transverse line on the 2nd, a large curved one on the 3rd, which is dilated roundly backwards at the side and is then continued along the lower edges to the base of the segment, 2 small oblique marks on the top of the 4th, yellow; the remaining segments and the ventral surface rufous, mixed slightly with yellow. Legs yellow, the fore-femora broadly above, the middle broadly, irregularly at the base, a large curved mark on the outerside of the hinder-narrow at the top becoming gradually wider towards the bottom-the lower edge and the teeth, the hinder tibiæ broadly below on the inner and outer sides and their calcaria, deep black. Wings almost hyaline, the fore pair infuscated broadly in front, the nervures black.

Length 11 mm. ♀

Hab. Kuching.

Except the front, the entire head and body is strongly and closely punctured; the face and clypeus are more closely and finely punctured than the rest; the front above the antennæ is smooth and shining; the scutellar depressions are strongly, distinctly, but not very closely, striated; the lower part of the pro- and mesopleuræ depressed and smooth and shining, this part on the mesopleuræ being obscurely finely striated around the edges. There are 7 teeth on the hinder femora: the basal one is short, blunt and indistinct; the 2nd is not much longer, but more distinct and broader; the middle 3 are very much larger, longer and more widely separated; the 6th is distinctly shorter than the 5th; and the 7th is shorter and less distinct than the 6th. The hinder tarsi are rufous: the 4 anterior dark yellow; the hinder coxæ are rufous on the under side at the apex and have there a yellow mark. The ovipositor reaches to the apex of the scutellum.

Megacolus apicipennis, sp. nov.

Black, the tarsi dark rufo-testaceous; the basal half of the

wings to the ulna smoky-fuscous, the ulna fuscous, the cubitus black, the apex of the wings milky-white; the hinder femora with 7 teeth; the ovipositor stout, two-thirds of the length of the body, ♀.

Length to the commencement of the ovipositor 10 mm.; the ovipositor nearly 4 mm.

Hab. Kuching.

Head and thorax coarsely, closely rugosely punctured; the front is stoutly keeled down the middle and is stoutly transversely striated on either side of the keel; the face is sparsely covered with glistening white hair. The upper part of the propleuræ is smooth and is depressed at the base, the lower is irregularly striated. The basal third of the mesopleuræ is depressed and is irregularly, widely striated. The base of the pronotum is obliquely depressed and is irregularly transversely striated. The apex of the scutellum broadly projects in the middle and is there roundly incised. Median segment coarsely reticulated; at the base on the sides is a large area roundly narrowed at the apex; between them are 3 areæ of which the central is the larger, and it is widened at the apex; on the sides of the segment is a large projection, wide at the base, roundly narrowed towards the apex; the apex of the segment triangularly projects. The basal three teeth on the base of the femora are short, broad and bluntly rounded; the others are more distinct; the apical two are closer to each other than the pair in front of them and are less prominent.

Megacolus rufiventris, sp. nov.

Black; the abdomen bright rufous; the tarsi, four front knees and the apices of the 4 front tibiæ rufo-testaceous; the hinder femora with 6 irregularly separated not very prominent teeth; the wings hyaline, with a faint fulvous tinge; the nervures dark fuscous; the ovipositor black, very stout, as long as the abdomen, ♀.

Length 9; ovipositor 4 mm.

Hab. Kuching.

Head and thorax coarsely rugosely punctured; the pro- and mesopleuræ closely reticulated; there is a smooth band at

the base of the latter which has on the upper part, 7 keels (the lower 3 separated from the upper) and below are 3 more widely separated longitudinal keels. Front stoutly keeled down the centre and closely transversely striated. Pronotum transversely striated at the base; on its apex is a smooth narrow band. The projecting apex of the scutellum is prominent and ends in two rounded lobes. Metanotum coarsely irregularly reticulated; its sides near the base, project into a stout, sharply pointed tooth and there is a shorter one near the middle. On the apex of the basal third of the hinder femora is a short tooth somewhat triangular in shape, followed by an indistinct one at some distance; following this, and separated by a less distance, is a sharper, longer; more distinct one, at about the same distance from this is a stouter one, immediately behind this a short blunt indistinct tubercle-like one, followed on the apex by 2 stout keels of which the hinder is somewhat the larger. Tegulæ rufous. The head, thorax and legs are covered with a silvery pile.

Closely allied to *Megacolus* is the following new Indian genus.

Megachalcis, gen. nov.

Antennæ placed over the base of the clypeus, 11-jointed, the 2nd joint cup-shaped, the 3rd much longer and narrower than it. Scutellum large, roundly convex, its apex transverse. The sides of the metanotum project at the base above and have a stout tooth in the middle. The base of the mesosternum has a stout tooth in the centre; the for ecoxæ have a rounded leaf-like expansion on the apex above. Hind femora regularly toothed. Basal abdominal segment longer than all the others united; spiracles on the 3rd large; the last large, elongate and forming a sheath for the ovipositor, which is stout and twice the length of the abdomen.

The occiput is margined, more sharply above than on the sides. Base of metanotum areolated. Five segments are on the abdomen as seen from the side, but only four from above. Sheaths of ovipositor stout, broad, pubescent and round on the apex. Hinder coxæ nearly as long as the femora. Pronotum large, roundly produced in the middle at the base.

Comes nearest to *Megacolus*, Kirby, which differs from it in having the antennæ 12-jointed and in the scutellum ending in a raised, bilobate plate behind. The 1st abdominal segment is, in *Megacolus*, half the length of the remainder.

Megachalcis fumipennis, sp. nov.

Black; the 4 front tarsi and the hinder tibiæ piceous, the hinder tibiæ ferrugineous; the wings smoky, the nervures deep black; hinder femora with 10 teeth of nearly equal size, ♀.

Length 12; terebra 10 mm.

Hab. Khasia (coll. Rothney).

Scape of antennæ, head, median segment and sides of abdomen thickly covered with silvery pubescence; the tarsi on the underside are thickly covered with stiff pubescence and bear, on the apices of the joints, stiff spines. Sides of the head in front coarsely rugosely punctured, the punctures running into reticulations; the vertex closely punctured; the outer orbits bear shallow, scattered punctures. Apex of clypeus roundly, but not deeply, incised; the part between the antennæ raised, transverse below. Pro- and mesonotum rugosely punctured, the punctures running into reticulations. The scutellum is more widely reticulated; it is flat above; at its base, laterally, the mesonotum forms two large rounded masses, opposite the tegulæ. The base of the median segment is flat, smooth; on the middle are five stout, longitudinal keels; the outer side is deeply foveate. The apex of the segment has on the top a large, deep, fovea, rounded behind, transverse below; below this are 2 or 3 irregular reticulations; the sides project largely and have, shortly beyond the middle, a large, somewhat triangular tooth. Propleuræ irregularly reticulated behind; the apex below and the lower part depressed, the mesopleuræ deeply and widely depressed, smooth, obscurely and finely striated in the middle. Metapleuræ regularly reticulated. Abdomen smooth and shining at the base, the 2nd segment broadly in the middle and the others entirely and more strongly punctured.

Epistenia longicollis, sp. nov.

Purple mixed with green and blue; the flagellum of the

antennæ black, the 4 anterior trochanters, femora, tibiæ and tarsi, the hinder trochanters, base of femora, apex of tibiæ and base of tarsi narrowly, rufous; the flagellum of the antennæ black, the scape for the greater part green; the wings hyaline, the nervures and stigma dark fuscous. ♀.

Length 12 mm.; ovipositor 2 mm.

Hab. Kuching.

The clypeus and the basal half of the mandibles are dark rufous, the latter covered with longish hair. Face and front for the greater part golden; the face covered with curved striæ, which are finer and closer on the inner half of the malar space, the latter being clearly separated from the outer part, which is minutely and finely striated. The front is rugose between and above the antennæ; this central part is wedge-shaped and bounded by the wide antennal furrows; the part between this and the scape is blue and finely transversely striated. Pronotum broadly depressed in the centre; the sides broadly rounded and finely and closely transversely striated; the pleuræ are finely and closely covered with curved striæ. The middle lobe of the mesonotum irregularly transversely striated; its base is dark blue; behind this is a green band; the rest is dark purple, except for a green band at the tegulæ; the apex of the middle lobe is transversely striated, except round the edges; in the centre are two curved, deep furrows. Scutellum somewhat strongly and closely longitudinally striated; it is dark purple, with a blue band on the base. Median segment green; the centre purple; this purple part is narrow at the base and becomes gradually and roundly wider towards the apex; it bears 4 or 5 stout, irregularly curved keels; the parts bounding this are stoutly striated and are raised above the sides, which are finely and closely rugose. Mesopleuræ for the greater part green, finely, closely and irregularly striated; the lower part is clearly separated off and is closely irregularly reticulated, except at the base which is raised and finely and closely punctured. The base of the metapleuræ is almost smooth above; below covered with fine curved striæ; above is a deep, distinct curved crenulated furrow, Abdomen dark purple the basal five segments, above and below. with narrow, longish rounded green lines on the outer edges.

The fore coxæ are for the greater part purple; the fore femora have a large green mark on the top; the apices of the 4 front femora are paler than the rest of them; the 4 hinder tarsi are dark testaceous.

E. imperialis, Sm., from Sarawak may be known from this by the ovipositor being two-thirds of the length of the abdomen and by the legs being black. In our species the anterior ocellus is larger than the two posterior and is placed in front of them about double the distance these are separated from each other; the ocellar region is an elongated oval and is clearly separated from the eyes; the vertex behind them is depressed. The prothorax is long, two-thirds of the length of the mesothorax; the head is almost double its width; the metathorax is fully half the length of the scutellum; the incision on the apex of the 3rd dorsal segment is better marked than it is on the basal two.

EVANIIDÆ.

Evania malayana, sp. nov.

Black; the palpi white; the wings hyaline iridescent, the nervures and stigma black; the mandibles with a testaceous band behind the teeth: the face with a small raised point in the centre, ♂.

Length 11 mm.

Hab. Kuching.

Face, clypeus and mandibles thickly covered with white pubescence, smooth and shining. Front irregularly striated; the striæ more or less intersecting and forming narrow elongated, irregular reticulations; in the centre is a moderately stout longitudinal keel. Hinder ocelli separated from each other by not quite half the distance they are from the eyes. Malar space closely and finely striated, the striæ obliquely curved. The central lobe of the mesonotum bears shallow, irregular punctures; the scutellum is less distinctly and more finely punctured; metanotum closely reticulated; in the centre the reticulations are closer, longer and narrower; laterally larger and rounder. At the apex the propleuræ bear some shallow elongated foveæ; near the bottom the meso- bear a broad, somewhat oblique band of punctures; the meta- closely and almost uniformly reticulated.

The metasternal keel is sharply raised; the fork is stout, short and broad, the sides straight, the apex bluntly rounded. The 2nd transverse cubital nervure is obsolete; the cubitus distinct; the lower part of the apical abscissa is rounded: the upper straight and oblique. The petiole above between the middle and apex, is irregularly longitudinally striated; the sides more stoutly obliquely striated. Tibiæ and tarsi thickly covered with short stiff black pubescence and more sparsely with short black spines; the calcaria are black; the front tibiæ and base of tarsi are pale testaceous in front.

Evania violaceipennis, sp. nov.

Black; the scape and the basal joints of the flagellum beneath, the mandibles, except the teeth and the 4 anterior femora and tibiæ in front, pale testaceous; the posterior tarsi except the apical joint, white; the wings uniformly dark violaceous; the nervures and stigma black. ♀.

Length 11-12 mm.

Hab. Kuching.

Face and clypeus opaque, alutaceous: the apex of the clypeus rounded; the malar space alutaceous; they are all thickly covered with silvery pubescence. Front longitudinally striated throughout; the striæ all distinctly separated; the central is the stouter. The hinder ocelli are separated from the eyes by almost double the distance they are from each other. The middle lobe of the mesonotum is indistinctly, irregularly reticulated. The part at the sides of the scutellum behind is stoutly, obliquely striated. The metanotum is closely, rather strongly, irregularly punctured, except at the apex which is smooth. Propleuræ almost entirely smooth; the meso- smooth, indistinctly punctured below, above with a raised, slightly oblique, band of stout striæ; the meta- are stoutly, regularly reticulated. The tibiæ are thickly covered with stiff black hair and sparsely with black spines. The apical abscissa of the radius is roundly, broadly curved inwardly; the first recurrent nervure is received distinctly beyond the transverse cubital; the 2nd transverse cubital nervure is obsolete. The sternal keel is stout; the metasternal process is stout, the forks diverge outwardly,

are stout, roundly curved and bluntly pointed at the apex. Petiole smooth above; its apical half laterally stoutly, obliquely striated.

STEPHANIDÆ.

Foenatopus fuscinervis, sp. nov.

Black: the head dark red; the vertex blackish; the basal joints of the antennæ pale rufous; the wings clear hyaline; the nervures and stigma pale fuscous; the abdominal petiole twice the length of the following joints united; the prothorax twice the length of the mesothorax, ♂.

Length 13 mm.

Hab. Kuching.

The scape of the antennæ is not much longer than the 2nd joint, which is slightly more than one half the length of the 3rd; the 4th is as long as the 2nd and 3rd united. The apical three frontal tubercles are stout, narrowed, but not sharply, above; the hinder pair are smaller and more rounded. Face closely rugosely punctured; its sides finely and closely transversely striated. Vertex closely, distinctly transversely striated and indistinctly furrowed down the middle, the furrow not breaking the striæ. The inner orbits are distinctly margined; the outer are pale yellowish. Prothorax closely and rather strongly aciculated, except at the apex which is testaceous in colour; there is a curved, not very stout keel on the apex; a stout keel runs between the tegulæ; the middle of the mesonotum is deeply depressed, the depression with some transverse striæ, and it is rounded at the base and apex. The base of the metanotum is widely depressed; in the centre are 2 stout straight keels; outside these is a thinner one; outside these a stouter oblique one and the edges are also keeled. The rest of the segment is stoutly reticulated, except the lower part of the metapleuræ, which is smooth, except for 4 stout, slightly oblique keels. Mesopleuræ sparsely punctured at the base and apex. Petiole very long and slender, closely striated; the sides, except on the apical fourth, furrowed; the sides of the 2nd and 3rd segments are testaceous. The alar stigma is long, nearly as long as the radial nervure; it is pale in the centre, pointed at the apex from

where the radius leaves it; the radius has the basal abscissa oblique and curved; the apical is straight and is about one fourth longer than it. The 4 anterior coxæ, trochanters, tibiæ and tarsi are testaceous; the basal half of the hinder femora is coarsely rugosely striated; there is a blunt, broad, not prominent, tooth behind the middle of the hinder femora; a stout one beyond the middle, a smaller one nearer the apex and 3 short teeth between these which are fuscous below.

Stephanus Ceylonicus, sp. nov.

[Black, a pale spot below the eyes; the 4 front legs piceous; the wings clear hyaline; the nervures and stigma black; the petiole as long as the rest of the abdomen united; the hinder femora with 2 teeth; the ovipositor broadly white at the apex. ♀.

Length 28 mm.

Hab. Trincomali, Ceylon. (Yerbury).

Antennæ black; the 2nd joint of the flagellum is distinctly shorter than the 3rd, which is slightly shorter than the 4th. Vertex closely covered with stout, curved striæ, which are stouter and more regularly curved before than behind; the 3 front teeth are stout and of nearly equal size, the hinder are almost obsolete. Face irregularly transversely rugose; above the punctures run into curved striæ. The narrowed basal part of the pronotum is closely, stoutly, transversely striated, but only sparsely at the extreme base; at the end of this is an impunctate space, the apex has a band of large deep punctures in the middle; the sides have some scattered, deep punctures. Scutellum impunctate. The depression at the base of the metanotum bears stout longitudinal keels; the part behind this is covered with round clearly separated punctures; the apex is irregularly, transversely reticulated. Propleuræ covered with stout, oblique striæ; the meso- almost impunctate; the meta- smooth, below with stout curved striæ, which form almost reticulations. Petiole closely striated. There are 2 large, widely separated teeth on the hinder femora, the hinder being slightly the larger; there is a short, broad, bluntly rounded tooth, immediately behind the posterior large one; and this is followed by a much smaller one.

The wings have a steel-coloured iridescence; all the nervures are complete; the basal abscissa of the radius is distinctly shorter than the apical; it is straight, not curved, and is slightly angled near the base. The ovipositor and abdomen appear to be stouter than usual; the former is as long as the body.

In Schletterer's arrangement (Berl. Ent. Zeits. xxxiii, 117) this species would come near *S. hæmatipoda*, Mont.]

Braconidæ.

Braconinæ.

Iphiaulax, Foerster.

1.—*Wings fuscous, the head, more or less of the thorax, and the fore legs, red.*

Iphiaulax Shelfordi, sp. nov.

Black, shining, the head, pro- and mesothorax, the front legs and the middle coxæ, trochanters and femora, red: the 1st, 2nd and basal half of the 3rd abdominal segments strongly longitudinally striated; the wings fuscous, the under side of the stigma, the upper half of the 1st cubital and the base of the radial cellule to the end of the stigma, orange-yellow. ♀.

Length 15 mm.; terebra 95 mm.

Hab. Kuching, February.

Antennæ black, shorter than the body; the scape 3 times longer than broad, of equal width throughout; the 3rd about one-third longer than the fourth. Front of vertex smooth and shining, their sides sparsely haired. Face strongly punctured, except in the centre above the clypeus, where it is depressed. Clypeus smooth, bare, except at the apex, twice broader than high, its sides above broadly rounded. Mandibles rufous, black at the apex, the middle closely and finely striated. Metanotum covered with black hair; its apical slope rather strongly longitudinally striated. The raised apical part of the petiole is depressed and smooth in the middle; the sides are stoutly, irregularly striated; the apical half of the lateral depression is stoutly transversely striated. The 2nd segment is closely, strongly longitudinally striated except on the

basal lateral depressions and in the centre at the apex; the basal area is finely and closely longitudinally striated; it is twice longer than its greatest width and becomes gradually narrowed towards the base and apex, the apical part being almost twice the length of the basal. Radial cellule long and narrow; the 2nd cubital is, on the lower side, nearly 3 times the length of the first and is distinctly longer than the 3rd. There is a small fulvous cloud on the base of the fore wing on the apical side. The ovipositor has the sheath thickly haired at the base and has a broad white band near the apex.

The legs are only shortly and sparsely haired; the parapsidal furrows are deep; the scutellar depression is shallow and irregularly striated; the hypopygium is large and projects beyond the cerci and is brownish in colour.

Comes near to *I. insignis*, Sm. *sec.* Szepligeti Termész. Fuzetek, xxiv, 372, but that species is larger (20 mm.) and has the ovipositor shorter compared with the body; has the 3rd and 4th segments striated, the 3rd antennal joint hardly longer than the 4th, the scape only twice longer than broad, etc.

Iphiaulax Kuchingensis, sp. nov.

Length 12 mm.; terebra 45 mm.

Hab. Kuching, February.

Agrees in colouration with *I. Shelfordi* but is smaller, more slenderly built and has the ovipositor shorter compared with the body, the radial cellule is not fulvous on the basal part, the apex of the petiole is not distinctly transversely striated; its central apical part is more strongly and distinctly longitudinally striated; the area on the base of the 2nd segment is not so distinctly defined and is continued as a keel to near the apex of the segment, there being no keel on *Shelfordi*; there are on it two lateral oblique keels bordering and limiting the basal half of the segment; and the apical two-thirds of the ovipositor are white.

Scape of antennæ cylindrical, not hollowed, becoming gradually wider towards the apex; its length about twice of the width at the apex. Face, except immediately over the centre of the clypeus, closely and coarsely punctured and covered with

stiff black hairs; the clypeus smooth, except on the apex, where there is band of black hair; above it is broadly rounded and has a distinct margin. Mandibles black at the apex; the base bare, the middle covered with long hair. Metanotum thickly covered with long black hair; on the apex in the middle are some irregular striæ. On the apex of the petiole are 3 irregular longitudinal keels, with one or two small ones; the 2nd segment is strongly striated; the striæ are mostly oblique and curved; the central keel is bordered by short round ones; the basal half of the 3rd segment is strongly, longitudinally straits ed; the remaining segments smooth. The fore legs are rufoulike the thorax; the middle femora and base of tibiæ of a darker rufous colour. The stigma is rufous below; there is an obscure fulvous cloud in the 1st cubital cellule; the 2nd cubital cellule is shortly, but distinctly longer than the 3rd.

Iphiaulax reticulatus, sp. nov.

Black, head, pro- and mesothorax and the anterior legs rufous; the scape below and a line on the middle femora dark rufous; the wings dark fuscous; the basal 4 abdominal segments closely longitudinally striated; the basal plate on the 2nd segment large, its length the width of the base, smooth; the apex obscurely finely striated; the keel extends to the apex; the raised part on either side of it is coarsely reticulated: the sides of the apex are more closely reticulated; at the base and middle coarsely obliquely striated. ♀.

Length 18; terebra 21 mm.

Hab. Kuching, February.

Scape of antennæ long, as long as the 4 following joints united; the 3rd joint is not much longer than the 4th. Head smooth and shining, the face covered with black hair; the clypeus shagreened, projecting, rounded behind. Front not depressed, a deep furrow with wide oblique sides above. Mandibles rufous, their teeth black. Middle lobe of mesonotum distinctly raised and separated from the lateral; its base bluntly rounded. There is an elongated fovea on the apex of the metanotum, bounded by a V-shaped keel below. Tibiæ and tarsi covered with moderately long hair. The raised part of the

petiole has a keel in the centre: it is raised and rounded at the base and does not extend to the apex; the apical half, on either side of it, is irregularly reticulated; second segment stoutly irregularly reticulated: the depression is stoutly, closely obliquely striated; the raised outer apical part is closely rugose and with some striæ. The 3rd and 4th segments are close, uniformly longitudinally striated. Wings, except for a narrow oblique cloud at the base and one below the 1st cubital cellule, dark fuscous, with a slight violaceous tinge; the 2nd cubital cellule above is slightly longer, below a little shorter than the 3rd.

Iphiaulax patrous, sp. nov.

Black: the scape of antennæ, head, thorax and forelegs ferruginous, the middle femora piceous; the wings fuscous; the 2nd 3rd and 4th abdominal segments closely longitudinally striated; the 2nd segment reticulated in the middle, the keel broad, extending to the apex; the dilated basal part broad at the base, becoming gradually narrowed to near the middle of the segment: its base smooth, the rest closely covered with twisted longitudinal striæ. Sheath of ovipositor densely pilose, broad: the apical third white; it is twice the length of the body. ♀.

Length 13 mm.

Scape of antennæ long, of equal width, longer than the 2nd and 3rd joints united; the 3rd joint shortly, but distinctly, longer than the 4th. Face closely and distinctly punctured, except in the middle, which is raised and smooth. Clypeus punctured below: it becomes obliquely narrowed towards the top which is transverse and is not dilated like the lower part. The ocellar region and the middle of the front depressed; the vertex sparsely covered with long hair. The raised part of the petiole is smooth and depressed at the base and has a shallow furrow in the middle; the apex has a keel down the middle and bears some stout, mostly transverse, keels. The lateral depression on the base of the 2nd segment is large, irregularly striated in the middle, narrowed at the base and with a large fovea at the base and on either side at the apex; the base of the 3rd segment is smooth laterally at the base and depressed there especially at

the sides; the middle of the segment is depressed and striated. The 4th segment has a large, smooth depression on the base at the sides. The legs are covered with black hair, which is longest on the posterior pair. The 2nd cubital cellule is slightly shorter than the 3rd.

This species is closely related to the species I have, with some doubt identified as *B. foveatus*, Sm. This agrees with it in colouration, but is larger and more stoutly built (16 mm.): the 2nd cubital cellule on the top is equal in length to the 3rd; the apex of the petiole is not stoutly, irregularly transversely striated; the lateral depressions on the 2nd, 3rd and 4th segments are larger and deeper, the keel on the 2nd segment is more distinctly defined and the longitudinal striation on the abdomen is stronger.

Iphiaulax mareotis, sp. nov.

Black, the head, pro- and mesothorax and the lower half of the metapleuræ ferruginous; the anterior legs, the middle coxæ, trochanters and femora rufous, the middle tibiæ dark rufous; the wings dark fuscous, the stigma and nervures black; the 1st and 2nd abdominal segments, the greater part of the 3rd and the 4th and 5th broadly in the middle longitudinally rugose; the furrows on the 2nd, 3rd and 4th segments are crenulated; the keel on the 2nd segment extends to the apex; the plate is longish and is stoutly longitudinally striated. ♂.

Length 15 mm.

Hab. Lingga.

Face thickly covered with long hair; its centre bare, smooth and shining; its lower sides have a yellowish tint. Front deeply excavated laterally; the hinder ocelli each bordered by a deep curved furrow behind. Clypeus transverse in the middle above, its sides rounded. Metanotum thickly covered with black hair. The petiole is more roundly convex than usual; the sides of the 2nd segment are not depressed at the base; the 3rd to 6th segment have a large roundish fovea on the sides near the middle, the foveæ becoming successively smaller. There is a faint curved cloud in the 1st cubital cellule at the base and a clearer, smaller pyriform one below the lower part of the 1st transverse cubital nervure; the 2nd abscissa of the radius is slightly, but distinctly, longer than the 3rd.

Iphiaulax Wallacei, sp. nov.

Black, the head, scape of antennæ, thorax and 4 front legs, ferruginous; the wings uniformly dark fuscous, the face with 2 deep short furrows in the centre immediately below the antennæ; the petiole with a narrow longitudinal keel down the centre, almost entirely smooth; the 2nd and the basal half of the 3rd segment closely longitudinally striated; the keel is broad at the base, becomes gradually narrowed to the middle, is closely longitudinally striated and extends to the apex of the segment. The suturiform articulation is deep, closely longitudinally striated and with both lateral branches deep, narrow, straight, oblique and striated. Sheaths of the ovipositor broad and thickly covered with longish black hair. ♀.

Length 15 mm.; terebra 18 mm.

Hab. Kuching.

Antennæ originating from prominent, almost biarticulate, tubercles; the scape longer than the 2nd and 3rd joints united; the 3rd and 4th joints are equal in length. Front hardly excavated; there is a narrow keel between the antennæ; the raised part, separating the furrows below the antennæ, becomes gradually narrowed above. Face in the centre smooth, the sides punctured sparsely and pilose. Clypeus depressed; the top transverse, the sides rounded. There is a short stout keel between the scutellum and post scutellum. Petiole with an irregular band of fine striæ before the middle. The depressions on the base of the 2nd segment are narrow, deep, oblique. The furrow on the 3rd segment is smooth. The hinder tibiæ are deeply grooved on the outer side from near the base to near the apex.

The 2nd abscissa of the radius is as long as the third; the apex of the middle tibiæ and their tarsi are blackish; the metanotum is broadly blackish; the hypopygium does not extend beyond the apex of the dorsal segment; the 2nd segment is square and is longer than the 3rd.

This is a broader and stouter insect than any of the other species here described.

Iphiaulax syleus, sp. nov.

Black, the head, pro- and mesothorax and the front coxæ, trochanters, femora and tibiæ, rufous; the wings dark fuscous;

the apex of the petiole with a stout keel down the centre and 2 or 3 oblique lateral ones; the area on the 2nd segment extends to the middle, becomes gradually narrowed, has raised sides and is irregularly striated; the part bordering it irregularly, stoutly reticulated; the 2nd, 3rd and basal half of the 4th closely, longitudinally striated; the ovipositor thickly pilose, the apical fourth white. ♀.

Length 11 mm.; terebra 14 mm.

Hab. Kuching, February.

Scape of antennæ about 3 times longer than broad; the 3rd joint about one fourth longer than the 4th and about twice the length of the 2nd. Face raised in the centre, flat, impunctate, transverse below, rounded above; the cheeks distinctly punctured. Clypeus raised, narrowed above; its apex as long as its length from the top to the bottom. Palpi blackish. Front not deeply depressed, the depression not including the ocelli. Scutellar depression narrow, closely crenulated, the central part of the 2nd segment is stoutly, transversely irregularly reticulated on the inner side; the outer and the apical parts longitudinally striated; the base laterally is smooth, shining and is not depressed; the outer sides are depressed and stoutly obliquely striated. The two transverse furrows are deep and closely striated; the outer furrow on the 2nd segment is long, wide, distinct and closely striated; that on the third is more curved and striated like the rest of the segment; the basal part is smooth; the curved furrow on the 4th is smaller, narrow, striated, the basal part being also striated. The 4th segment is closely striated to near the apex.

This species is not unlike *I. patrous*, but that has the scape red; the raised central part of the 2nd segment has its sides curved inwardly and is narrower at the apex, the lateral foveæ are not distinctly bordered behind by furrows and the median segment is black.

ii.—*Head, more or less of the thorax and fore legs red, the wings fuscous, yellow at the base.*

Iphiaulax sadyates, sp. nov.

Black, the head, thorax and 4 anterior legs ferruginous; the anterior wings yellowish, suffused with fuscous, the posterior

yellow, with the apical third and the lower two-thirds fuscous; the basal three segments of the abdomen coarsely longitudinally striated; the basal half of the four in the centre more finely, and the base of the 5th still more finely, striated; the 4th and 5th segments with a crenulated curved furrow at the base, the plate on the base of the second segment is small, smooth and shining; a narrow, indistinct keel leads from it to the centre. There is a cloud on the lower side of the 1st cubital cellule, which is continued downwards along the recurrent nervure on the upper half and along the cubital nervure; the 2nd abscissa of the radius is longer than the 3rd. ♂.

Length 16 mm.

Hab. Santubong, 2600 feet.

Antennæ longer than the body; the face thickly covered with long hair; the clypeus rounded above. The petiole is stoutly keeled in the middle; the striæ on the sides are stout, irregularly curved and more or less broken. The sides are depressed and irregularly striated; the striæ along the keel run into reticulations. The suturiform articulation and the keel on the third segment are stoutly longitudinally striated; that on the 4th is less strongly; there are no apical transverse furrows.

The scape of the antennæ is rufous above; it is slightly more than twice longer than wide; the 3rd and 4th joints are equal in length.

Iphiaulax varipennis, sp. nov.

Pale yellow, the back of the abdomen, the vertex, the middle of the front broadly, a mark, rounded on the top, in the centre of the face, the sides of the mesonotum and a large mark in its centre at the base, an irregular mark on the base of the metanotum, the mesosternum, a curved mark, narrowed behind, on the centre of the mesopleuræ, two marks on the prosternum and the hinder legs, black. Wings with the basal half, the 1st cubital cellule and a narrow curved spot, dilated below, underneath it, yellowish-hyaline; the rest of the wing dark fuscous, the hinder wings yellowish hyaline to beyond the middle, the apex dark fuscous, the band on the lower side extending to near the middle; the basal half of the stigma is orange-yellow. ♀.

Length 13 mm.; terebra 4 mm.

Hab. Matang, 3600 feet.

Antennæ longer than the body, black; the 3rd joint hardly longer than the 4th and twice the length of the 2nd; the scape about 3 times longer than wide and thickly pilose. Head and thorax smooth and shining. The top of the petiole stoutly, irregularly and not very closely longitudinally striated; its sides below pale orange yellow; the centre of the 2nd segment is stoutly irregularly longitudinally striated; the suturiform articulation is crenulated in the middle; the apical segments are narrowly banded with white on the apex.

The ventral surface is marked laterally with black spots; the abdomen is about twice the length of the thorax; the 2nd abscissa of the radius is shorter, but not much, than the 3rd.

Iphiaulax portius, sp. nov.

Head and thorax ferruginous, the ocellar region black, the metanotum infuscated; the 4 front legs rufous-yellow; the wings to the stigma yellowish hyaline, the rest fuscous, the base of the stigma yellow; the hinder wings yellowish to the middle below, above beyond the middle; the greater part of the 2nd abdominal segment coarsely longitudinally striated; the 3rd less strongly and distinctly to near the apex; the plate on the 2nd segment large, triangular, its keel slightly shorter than it; the part surrounding it depressed. ♀.

Length 9 mm; terebra 7 mm.

Hab. Kuching.

Antennæ black; the scape triangularly projecting on the apex below; the 3rd joint, shortly but distinctly, longer than the 4th, front and vertex smooth and shining; the face closely rugosely punctured; the clypeus depressed, almost smooth, rounded above, transverse below. The petiole behind the basal slope is irregularly punctured; near the apex it is much more strongly and distinctly punctured: the band is prolonged in the middle and does not reach to the apex, which is smooth. The second segment is smooth in the middle at the apex; the suturiform articulation is crenulated; the furrows on the 3rd and 4th segments are also crenulated, but not strongly. The recurrent

nervure is not quite interstitial, being received shortly behind the transverse cubital.

Iphiaulax halæsus, sp. nov.

Ferruginous, the abdomen, antennæ except at the base, and the hinder legs, black; the fore wings to the transverse basal nervure, the 1st cubital cellule and an oblique spot on the upper edge of the 2nd cellule, yellowish-hyaline; the petiole keeled in the centre; the 2nd and 3rd cubital cellules closely longitudinally striated, the basal plate on the 2nd segment elongated, the sides and centre keeled; the keel extends to the apex of the segment. Face sparsely punctured; there is a square depression below the antennæ. Parapsidal furrows distinct. Petiole broad, as long as the 2nd segment: its lateral keels indistinct at the base. The keel bordering the lateral depression on the 2nd segment is narrow, straight and oblique; the part bordering it on the outerside is closely obliquely striated, the apical segments are narrowly lined with pale yellow. Legs moderately pilose; the middle tarsi infuscated.

Length 16 mm.; terebra 17-18 mm.

Hab. Kuching.

Antennæ shorter than the body; the basal two joints obscure rufous: the 3rd and 4th joints are about equal in length; the 2nd abscissa of the radius is slightly shorter than the 3rd; the transverse median nervure is not quite interstitial, being received in the discoidal cellule, but almost touching the transverse basal; and therefore differs from the typical *Braconinæ* in which it is completely interstitial. In other respects the species is a typical *Iphiaulax*.

iii.—*Head, thorax and fore legs red; the wings yellow at the base, hyaline at the apex.*

Iphiaulax crassitarsis, sp. nov.

Head, thorax, anterior legs, the greater part of the middle emora and tibiæ and the scape of the antennae, ferruginous; the asal half of the fore wings yellowish hyaline, the apical clear yaline, the hinder wings fuscous, hyaline at the apex; abdomen short, ovate, broader than the thorax, closely, but not very disinctly or strongly longitudinally striated. ♀.

Length 8 mm.; terebra 6 mm.

Hab. Kuching.

Scape of antennæ fully three times longer than wide; its apex below sharply projecting; the 3rd joint is distinctly longer than the 4th. Face punctured; the clypeus convex; its base rounded; its apex below obliquely depressed; the labrum is distinctly seen below it, and is rounded at the apex. Vertex deeply depressed and with a deep furrow in the middle. Temples obliquely narrowed. The petiole rises straight from the base and forms an angle with the second segment; its base, in the centre, is rufous, its apex closely, rugosely longitudinally striated. The plate on the second segment is smooth and shining; it is large, its length slightly longer than the width at the base; it becomes gradually narrowed towards the apex with the sides curved at the apex; there is no keel issuing from it; the lateral furrows are straight, wide, moderately deep and oblique. Suturiform articulation crenulated; its apical lateral furrows wide, shallow; there is an indistinct furrow on the apex of the segment; and a more distinct, crenulated one on the apex of the 3rd, 4th and 5th segments; the apical segments are clearly separated at the edges. Legs stouter than usual, the hinder pair having the tibiæ and tarsi distinctly thickened; they are thickly pilose; the pile on the front of the middle tibiæ is rufous; the basal joint of the hinder tarsi is thickened. The 2nd abscissa of the radius is slightly shorter than the apical; the 2nd transverse cubital nervure is faint; the stigma is shorter and broader than usual.

iv. *Entirely luteous, the wings fuscous, yellow at the base.*

Iphiaulax matangensis, sp. nov.

Luteous, the head and mesonotum paler; the back of the abdomen suffused with black; the wings fuscous, the base to the transverse basal nervure, and a cloud in the 1st cubital cellule yellowish-hyaline; a small hyaline spot below the bottom of the 1st transverse cubital nervure; the stigma black, narrowly yellow at the base; the keel on the 2nd segment is not much dilated at the base, becomes gradually narrowed and extends to the apex. ♀.

Hab. Matang, 2800 feet.

Antennæ longer than the body, entirely black, the scape somewhat more than twice longer than broad, not dilated; the 3rd and 4th joints equal in length. Clypeus rounded on the top, narrow. Front not much depressed, furrowed in the centre. The 3 lobes of the mesonotum are largely fuscous. The raised central part of the petiole is not much longer than broad; is rugosely punctured on the top, its lateral slopes smooth, brownish and bearing 3 keels in the centre; the lateral furrows are wide and deep; the sides above are furrowed and striated. The 2nd segment on either side of the keel is widely reticulated; the sides at the base are depressed and bear curved stout striæ. The suturiform articulation is wide and striated; the furrow on the base of the 3rd is smooth; on the 4th closely crenulated; the apical 2 segments are smooth.

Iphiaulax annulitarsis, sp. nov.

Luteous, the head more yellowish in tint, the 3rd and following segments black, their apices pale yellow; the apex of the hinder tibiæ and of the joints of the hinder tarsi, black; the wings fuscous from the transverse basal nervure, behind it yellow; the basal half of the hinder wings yellow; the stigma black, with a small yellow spot on the base; the antennæ black. ♀.

Length 11-12; terebra 9 mm.

Hab. Kuching.

Scape of antennæ about 4 times longer than broad: the 3rd joint slightly, but distinctly, longer than the 4th. Face and clypeus rugose; the face broadly raised in the centre and with a depression near the apex, where it has an oblique slope; the top of the clypeus is transverse, its sides rounded. Centre of petiole coarsely, longitudinally punctured; the sides on the inner side at the apex, transversely striated. The 2nd segment is closely rugosely punctured; in the centre longitudinally striated; in length the plate is about twice the length of the width at the base; it becomes gradually narrowed, and a narrow keel runs from it to beyond the middle of the segment; the part bordering the sides of the plate is depressed and is stoutly transversely striated. The suturiform articulation and the fur-

rows on the 3rd and 4th segments are crenulated. The 2nd abscissa of the radius is distinctly shorter than the 3rd.

The raised central part of the 2nd abdominal segment is large and has straight sides, it being therefore of equal width; the lateral furrows are closely striated; and are wide at the base. The abdomen is slightly longer than the head and thorax united; it is wider than the latter and is ovate in form.

Iphiaulax hirpinus, sp. nov.

Luteous, the antennæ black, yellow at the base; the wings yellowish-hyaline to the transverse basal nervure, the rest dark fuscous, with the stigma black; the plate on the base of the 2nd abdominal segment not clearly defined, not narrowed towards apex and rugosely punctured. ♀.

Length 9 mm. terebra 3 mm.

Hab. Kuching.

Antennæ longer than the body, the scape rufous, black on the middle above, about twice longer than wide; the 3rd and 4th joints are equal in length. Face closely rugose, keeled below the antennæ; the clypeus rounded on the top. Median segment thickly covered with white hair. The central part of the petiole is rugosely punctured; it becomes narrowed towards the apex which is rounded. Second segment stoutly irregularly striated to near the apex; the striae are more or less twisted; the sides are broadly depressed and are finely striated. Suturiform articulation wide, deep and crenulated; the 4th and 5th segments have distinct crenulated furrows on the base; there are also transverse furrows on the apices of the 3rd, 4th and 5th segments. The sheaths of the ovipositor are black and covered with black hair. The 2nd abscissa of the radius is perceptibly shorter than the 3rd; the 2nd abscissa of the cubitus is slightly shorter than the 3rd.

Iphiaulax amestris, sp. nov.

Luteous, a broad curved black mark across the ocellar region extending to the eyes, the basal 4 dorsal segments of the abdomen more or less black; the wings yellowish-hyaline to the transverse basal nervure and on the hind wings to near the middle, the rest fuscous-black; the basal third of the stigma yel-

low; there is a cloud in the 1st cubital cellule which extends from near the top, at the base, to the lower apical corner and above extends along the top to the apex; the plate on the base of the 2nd segment extends to the centre and becomes gradually narrowed, the basal five segments of the abdomen are closely longitudinally striated; the abdomen ovate, not longer than the thorax and wider than it. ♀.

Length 11 mm., terebra 8 mm.

Hab. Kuching.

Antennæ longer than the body, black, the flagellum brownish beneath towards the apex; the 3rd and 4th joints equal in length; the scape about twice longer than broad; its apex projecting into a spine. Petiole in the centre finely irregularly longitudinally striated; the depressed sides are broad and are finely, indistinctly striated; the 2nd to 5th segments are closely longitudinally striated, the striation becoming weaker on the apical segments; on the base of the 2nd segment is a straight, narrow, deep oblique furrow, which is sparsely straited, the suturiform articulation is distinctly crenulated; the apices of the 3rd and 4th segments are depressed, smooth and have a narrow indistinct transverse furrow; the lateral furrow on the 3rd segment is broad, curved and striated.

Entirely luteous, the wings entirely yellow, long, with a black spot at the base of the stigma.

Iphiaulax laertius, sp. nov.

Luteous, smooth and shining; the suturiform articulation stoutly, but not closely, striated in the middle, the other furrows smooth; antennæ for the greater part black; the wings long, yellow, the anterior smoky round the apex of the stigma and the costa at its base, black, the posterior pair smoky at the apex and round the apical lower margin, the cloud becoming gradually narrowed on the inner side; an oblique cloud at the base of the stigma; the temples obliquely narrowed; the legs thickly covered with long fulvous hair.

Length 13; terebra 7 mm.

Hab. Kuching.

Antennæ longer than the body, the scape rufous and covered with long pale hair. Face and clypeus covered with long

fuscous hair, each originating from a pit; the clypeus behind is bordered by a rounded narrow keel. Mandibles paler coloured than the head; their teeth black. Abdomen shining, impunctate; the suturiform aticulation has 7 or 8 stout, longitudinal, clearly separated longitudinal keels in the middle; the petiole is distinctly longer than the 2nd segment and appears narrower than usual; it is depressed at the base; from the base a keel runs to near the apex. The keel on the second segment is smooth and shining; the oblique and lateral furrows on the 2nd and 3rd segments are smooth; there are no transverse furrows on the 3rd and following segments.

Ipihaulax leptopterus, sp. nov.

Luteous; antennæ dark brownish, paler towards the apex; the scape black above; the wings long, yellowish, a dark cloud at the base of the stigma along the cubitus and extending shortly beyond the middle of the 1st cubital cellule; the lower part of the apex of the front and the entire apex of the hinder wings smoky; the transverse furrows on the base of the 2nd, 3rd and 4th segments crenulated. Legs thickly covered with longish pale fulvous hair. ♀.

Length 17 mm., terebra 7 mm.

Hab. Matang, 3600 feet.

Face irregularly punctured and covered with long fuscous hair; the middle above indistinctly keeled. The top of the clypeus is transverse in the middle, the sides rounded. Frontal furrow deep. The apical lobe of the pronotum is widely and deeply depressed, the depression is rounded above, transverse at the base laterally at the base, there is a crenulated band. The 1st abdominal segment is longer than the 2nd being in length twice the width of its apex; its centre is stoutly keeled; the keel being larger at the base; the sides of the segment, on either side of it, are irregularly punctured and striated. The lateral depression on the 2nd segment is wide, deep and is irregularly striated at the base. The suturiform articulation is wide, deep and is stoutly longitudinally striated; the apical lateral furrow is smooth. The transverse furrows on the 3rd and 4th segments are distinct, narrow and longitudinally striated. There are no apical transverse furrows.

This is probably the species recorded by Smith (Journ. Linn. Soc. 1857, 122) from Sarawak as *Bracon aculeator*, Fab.; but the present is different from the Indian species I have regarded as *aculeator*, Fab., *Sec.* Brullé. According to Brullé the latter has the basal 3 segments of the abdomen finely longitudinally striated and it has a transverse furrow on the base of the 5th segment.

In colouration this species is identical with *I. laertius* here described; but that species is easily known by the head being obliquely narrowed behind the eyes.

Black, the wings fuscous, hyaline at the apex. Short broad species.

Iphiaulax trichiosoma sp. nov.

Black, thickly covered with black hair, the head, scape of antennæ and the fore femora in front rufo-testaceous, the wings dark fuscous to the base of the stigma, beyond that milk white; the stigma from near the base pale testaceous, the radial and cubital nervures pale, almost white. ♀.

Length 7-8 mm., terebra 1 mm.

Hab. Kuching.

Scape of antennæ short, about twice longer than broad. Face sparsely punctured and covered with fuscous hair. The scutellar depression is rufous. Post-scutellum irregularly longitudinally closely striated and with a smooth keel in the centre which becomes wider at the apex. The 2nd to 5th segments are closely longitudinally striated, the striæ intermixing all over; the basal plate on the 2nd segment is elongate, extends to the middle of the segment and becomes gradually narrowed; it is bordered laterally by 3 stout oblique keels. The 3 transverse furrows are wide, deep and longitudinally striated; the lateral furrows are wide and shallow; they are dark rufous in the centre. Legs thic y covered with black hair. The 1st and 2nd abscissæ are together not equal in length to the 3rd; the recurrent nervure is not quite interstitial, it being received at the apex of the 1st cubital cellule.

The eyes are distinctly margined; the ocellar region black; the temples are distinctly, roundly narrowed; the occiput is transverse; the abdomen is elongate-ovate, narrowed towards the base and apex.

Iphiaulax Carnasius, sp. nov.

Black, the head and median segment thickly covered with longish black pubescence; the wings, to the base of the stigma, black, with a violaceous tinge; beyond that milky-white; the apical two-thirds of the stigma pale yellowish-white; the apical nervures white; the abdomen ovate, much wider than the thorax; coarsely and closely rugosely punctured. ♀.

Length 7 mm., terebra 2 mm.

Hab. Kuching.

Antennæ longer than the body; the scape thickly covered with pubescence. Face irregularly punctured. Its centre slightly raised and smooth; the part over the oral incision raised above; its centre hollowed. Mandibles black; their basal half brownish below. Apical joints of the palpi fuscous. Thorax smooth and shining; the transverse furrow at the base of the scutellum shallow, straight and irregularly, stoutly crenulated. The apical abscissa of the radius is shortly, but distinctly, longer than the basal two united; the upper part of the 1st cubital cellule is hyaline. The basal segment of the abdomen is smooth and shining; the other segments are closely, rugosely punctured and more or less striated in the centre; the basal keel on the 2nd segment is smooth, shining, long and narrow; its keel is narrow and indistinct and extends to the apex of the segment, which is irregularly reticulated on either side of it; this part is obliquely bounded by a raised border: the lateral depression is, on the inner side, closely striated. The suturiform articulation is deep, clearly defined and longitudinally striated; the other furrows are less clearly defined. Legs stout, thickly covered with short, stiff black pubescence.

Iphiaulax brunneomaculatus, sp. nov.

Black: the greater part of the head and the fore part of the thorax more or less brownish; the wings to the base of the stigma dark fuscous, beyond that milky-white; the stigma, except at the base, and the apical nervures pale yellow. ♀.

Length 7; terebra 1½ mm.

Hab. Kuching.

Antennæ longer than the body, the flagellum brownish. Head shining; the vertex for the greater part black, the rest

brown; smooth. On the base of the median segment are two broad, shallow, slightly oblique furrows. Mandibles brownish-yellow, black at the apex. The apical part of the petiole is closely rugosely punctured; the 2nd segment is coarsely longitudinally punctured; the base of the keel is irregularly triangular, is shining and aciculated; the keel extends beyond the middle; the part bounding it is depressed and irregularly striated; the lateral furrows are broad, distinct and striated; the 2nd furrow is distinct and striated; the 3rd and 4th are narrower and less distinctly striated. The legs are more or less brownish and are thickly covered with black hair; the metatarsus is stouter than the other joints.

This species is very similar in form and colouration to *I. carnasius;* it may be easily separated from it by the rugosely punctured petiole and by the smooth and shining plate on the base of the 2nd segment, with its stronger keel.

Chaoilta fuscipennis, sp. nov.

Black, the head, thorax and 4 front legs ferruginous; antennæ black, the scape rufous; the abdomen, except the apical two segments, closely and distinctly punctured, its furrows striated. ♀.

Length 16 mm. terebra 17 mm.

Hab. Kuching.

Scape with a triangular hollow on the apex beneath; the corners projecting into short stout teeth. Front depressed, its centre furrowed. The frontal plate is large, becomes gradually narrowed towards the apex, which is rounded; the central keel is stout, does not reach to the apex and becomes gradually smaller. Antennal tubercles large, tuberculate on the outer side above. Thorax smooth and shining; the metanotum black to near the apex, where there are some irregular striæ in the centre. Legs thickly haired, the hinder tibiæ grooved on the outer side. The raised central part of the petiole is rugosely, longitudinally striated: the striæ are irregular and intermix; the depressed sides are longitudinally striated, more regularly and distinctly than in the centre. The 2nd 3rd and 4th segments are closely longitudinally striated: on the 4th the long-

itudinal striæ are mixed with transverse finger striæ. The sutures are closely striated. The area on the base of the 2nd segment is long and narrowed, extends to shortly beyond the middle and becomes drawn out into a fine point. The oblique depressions on the 3rd and 4th segments are shallow and not very distinct. The sheaths of the ovipositor are thickly covered with hair.

The toothed apex of the antennal scape is not so prominent as it is in the type (*C. lamellata*, Cam.) A characteristic of the genus is the long front tarsi which are more than twice the length of the tibiæ.

In Mr. Ashmead's generic synopsis of the genera of *Braconidæ* (U. S. Nat. Mus. Bull. xxiii, 137) no mention is made of the broad front plate, stress being laid on the toothed apex of the scape which is probably only of secondary importance. *Chaolta* Cam. (Manchr. Memoirs, 4th May, 1899, No. 3, p. 81) is identical with *Blastomorpha*, Szepligeti, Termesz, Fuzetek; xxiii, p. 50, 1900. To it also belong *Bracon intrudens*, Sm., from Celebes, *B. perplexus*, Sm., *B. inquietus*, Sm., from Borneo and *B. vulturosus*, Sm., from Singapore.

Elphea, gen. nov.

Abdomen long and narrow, almost cylindrical; the segments, except the apical, longer than broad, smooth without transverse furrows, the 2nd and 3rd segments separated like the others and without a suturiform articulation; the 2nd segment with a large shield-shaped plate on the base of the second segment. Hypopygium large cultriform. Antennæ long and stout, the scape large, globose. Temples large, roundly narrowed; occiput roundly incised. Eyes large, slightly incised on the inner side; the malar space of moderate length. Wings long and narrow; the transverse median nervure interstitial; the transverse basal is united to the cubital a short distance from the base of the latter, which issues from the costa and not from the transverse basal; the recurrent nervure is received at the apex of the 1st cubital cellule and is not interstitial; the anal nervure is received shortly below the middle. Fore tarsi about one-fourth longer than the tibiæ; the 1st joint of the tarsi not much longer than

the 2nd. Tegulæ large, projecting. Hind wings as in *Bracon*. Radius reaching to the apex of the wing. Thorax longish and narrow.

A genus of *Braconinæ* easily known by the long narrow body; the long abdomen without transverse furrows or suturiform articulation, large conchiform tegulæ, short thick scape. The metathoracic spiracles large and placed behind the middle. Tarsi spined. It comes near to *Campsobracon*.

Elphea lutea, sp. nov.

Luteous: the front, vertex, occiput and half of the outer orbits and the 5th and 6th abdominal segments on the back, black; the wings yellowish-hyaline; a broad cloud at base of the stigma extending to the opposite side, a shorter one at its apex extending only to the cubitus; a broader one on the apex commencing near the 2nd transverse cubital nervure and the apex of the hinder wings with 2 clouds behind, smoky; the stigma and nervures yellow. Abdomen long and narrow: smooth; the suturiform articulation crenulated; there are no other furrows. ♀.

Length 13; terebra 20 mm.

Hab. Kuching.

Antennæ as long as the body, black, brownish beneath towards the apex. Head smooth, shining and impunctate; the ocelli bordered by furrows: the face with a distinct, deep furrow down the centre; there is a furrow on the lower part of the front which becomes gradually wider towards the apex. The face has a distinct yellow tint. The 1st cloud in the wings is irregularly rounded behind, is narrowed above, behind it follows the transverse basal and transverse median nervures, at the apex the recurrent nervure; the 2nd is of almost equal width: the apical cloud commences near the 2nd transverse cubital nervure and below extends backwards to nearly opposite the lower part of the 1st transverse cubital. The raised area on the 2nd segment is large, extends to the middle of the segment, becomes gradually narrowed to the apex, with the sides rounded, not straight; its sides are depressed; at the apex is a depression which has a keel in the middle.

Elphea flavomaculata, sp. nov.

Black, smooth, and shining; the face, except for a narrow black line in its centre above, and a large black mark on its lower half below, a mark on the hinder edge of the pronotum, broadest behind the tegulæ, a broad curved mark below them, a mark under the hind wings, the apices of the abdominal segments and the greater part of the ventral surface, pallid yellow, as are also the 4 front legs, except for a black line on the tibiæ; the hinder legs black, the base of their tibiæ testaceous. wings hyaline, with a fulvous tinge; the lower part of the apex of the anterior and the whole of the apex of the posterior smoky; the stigma dark fuscous in front, pale yellow behind; the nervures fuscous. ♀.

Length 14 mm., terebra 8 mm.

Hab. Kuching.

Antennæ black, short, longer than the body. Median segment sparsely covered with long fuscous hair, its apex all round and a large mark on the pleuræ are testaceous. Abdomen smooth and shining: the base and sides sparsely haired.

Plesiobracon, gen. nov.

Median segment with a keel down the centre. Temples sharply obliquely narrowed, the occiput transverse. Malar space large. Transverse median nervure interstitial; the recurrent nervure widely distant from the transverse cubital Abdomen as in *Iphiaulax*, with distinct transverse crenulated furrows; the 4th segment produced in the middle above.

The cubitus originates from below the upper part of the transverse basal; the stigma is large; the hypopygium is large, cultriform; the antennæ are long; the mandibles are broad at the base, curved and end in a sharply-pointed tooth.

This genus is allied to *Iphiaulax* by the form of the abdomen but is readily separated from it by the recurrent nervure not being interstitial, by the stout keel on the metanotum and by the temples being sharply obliquely narrowed behind the eyes.

Plesiobracon carinata, sp. nov.

Black, the face, oral region, the inner, outer and the lower outer eye orbits narrow; the malar space and madibles rufo-

testaceous; the palpi white; the wings hyaline; the lower part of the clypeus and the nervures testaceous; the back of the five basal segments of the abdomen, striated longitudinally and closely.

Length 5-6; terebra 7 mm.

Hab. Kuching.

Antennæ longer than the body; the scape and basal joint of the flagellum black, bare and shining; the other joints brownish black. Face aciculated, almost shining; the clypeus impunctate, shining. Apex of mandibles black. Thorax covered with longish white pubescence. Legs covered with white pubescence, the front pair testaceous, the middle tarsi dark testaceous. The 1st and 2nd abscissæ of the radius are together shorter than the 3rd. Post-petiole rugosely punctured; the base smooth, its sides striated; its middle with a smooth furrow which projects into the punctured apical part. The basal plate on the base of the second segment is longer than broad, narrowed towards and longitudinally striated; the keel is narrow; the suturiform articulation and the furrow on the 3rd and 4th segments are striated closely; the 4th dorsal segment projects bluntly in the centre; the 3rd and following segments are narrowly edged with whitish-yellow on the apex.

Sigalphogastra, gen. nov.

Abdomen with 5 segments, the 3 middle ones broader than long, the basal and apical longer in proportion to the breadth; all the segments longitudinally striated; the last broadly rounded at the apex; the apical 3 with transverse crenulated furrows on the base. Median segment with a stout keel in the centre at the base and two curved narrower, sharper keels on the apical half. Temples broad, slightly roundly narrowed. Malar space large. Wings as in *Bracon*. Legs rather slender, the tibiæ and tarsi densely pilose.

This genus possesses all the characteristics of the *Braconini* except as regards the marked difference in the form of the abdomen. In the *Braconini* there are 7 segments which become gradually smaller; in the present genus there are only 5 large segments of almost equal size. The form of the abdomen reminds one of the *Chelonince*, but that group does not belong to

the *Cyclostomi*. In our genus the mesonotal furrows are complete: there is a crenulated furrow at the base of the scutellum which is moderately convex; there is a distinct curved furrow at the base of the median segment; the scape of the antennæ is long and slender, the pedicle is of equal width, broader a little than long and transverse at the apex; the first 3 joints of the flagellum are long, fully 3 times longer than wide and of equal length.

This genus clearly comes close to *Chelonogastra*, Ashmead (Bull. U. S. Mus. xxiii, 139) from Japan. It may be known from our genus by the abdominal segments being unequal in length; the 1st and 2nd occupy most of the surface, the 4th and 5th being very short; the first three joints of flagellum are scarcely longer than thick, etc.

Sigalphogastra Ashmeadi, sp. nov.

Head and thorax ferruginous, the antennæ, abdomen and hinder legs black; the fore legs rufous; the middle dark testaceous; the head and thorax smooth and shining, the metanotum with a few irregular keels in the centre; the back of the abdomen strongly, irregularly longitudinally striolated; the wings hyaline, the nervures black; the stigma fuscous below. ♂?

Length 7 mm.

Hab. Kuching.

Sides of the face sparsely punctured; the centre raised, clearly separated and smooth; it is separated from the clypeus. Tips of mandibles black; the palpi pale rufous. Front flat in the centre, bordered laterally from near the top by a blunt, stout keel which runs into the antennal scape. The centre of the petiole is raised, clearly limited; its sides raised, broad at the base, its apex narrowed; there is an irregular row of oblique keels on the sides. The area on the 2nd segment is large, broad at the base, becoming gradually narrowed to the apex; it is finely irregularly longitudinally striated, the rest more strongly transversely striated; there is an oblique keel outside this; the part on either side of this is stoutly obliquely striated; the last segment is more closely and regularly striated than the others.

Rhogadinæ.

Dedanima, gen. nov.

Occiput, cheeks and temples margined. Temples broad. Fore wings with 3 cubital cellules; the recurrent nervure in fore wings interstitial; the transverse pobrachial received in the discoidal cellule. Radial nervure in hind wings reaching to the apex of the wings; the pobrachial nervure in it placed half way between the lower part of the præbrachial and the base of the wing; stout. Eyes large, distinctly incised on the inner side. Parapsidal furrows deep; the middle lobe of the mesonotum raised. Abdomen sessile; the basal segment longer than the 2nd, which is as long as the 3rd and 4th united; the 3rd 4th and 5th segments are equal in length and width. The suturiform articulation is distinct throughout, wide, deep. The basal 4 segments are closely punctured and obscurely striated; the apical segments are bluntly pointed; the ovipositor not projecting. There is a deep curved furrow on the lower side of the mesopleuræ in the centre. The radius originates behind the middle of the stigma; the 2nd transverse cubital nervure is faint. The hinder coxæ are elongate; they are slightly longer than the trochanters which are long, slender and curved. The spurs are short. The hypopygium is large. The 1st abscissa one-third of the length of the 2nd.

If it were not for the absence of keels on the basal abdominal segments I should have felt inclined to have placed this genus with the *Rhogadini*. The only other group in which it can be placed is the *Rhyssalini*. Characteristic is the well-marked furrow on the mesopleuræ.

Dedanima longicornis, sp. nov.

Luteous, covered with a pale pubescence; the ocelli and the antennæ black; the wings hyaline, the stigma and nervures black; the basal 4 segments of the abdomen closely longitudinally striated. ♀.

Length 7 mm.

Hab. Kuching.

Antennæ longer than the body, densely covered with a fuscous pile. Parapsidal furrows deep; the middle lobe of the mesonotum raised and clearly separated. Propleuræ depressed and punctured in the centre. Mesopleural furrow, curved, deep, lightly widened and rounded at the apex; it occupies the central part of the pleuræ. The striation on the abdomen is strongest on the 2nd segment, whose sides are tuberculate near the base. The sheaths of the ovipositor are black and short.

Halycæa, gen. nov.

Antennæ longer than the body, filiform. The joints of the flagellum not clearly separated. Head cubital, rounded in front transverse behind, the occiput margined; the malar space large almost as long as the length of the eyes. Palpi long and filiform. Mesonotum flat; the middle lobe separated, broadly furrowed down the middle; between its apex and the base of the scutellum is a broad, shallow depression, which is irregularly longitudinlaly striated. Scutellum flat throughout. Median segment closely reticulated, long, flat above and with a short apical slope. Legs long; the front tarsi more than twice the length of their tibiæ. Wings with 3 cubital cellules: the 2nd longer than the 1st and shorter than the 3rd. In the hind wings the pobrachial transverse nervure is interstitial with the præbrachial. The costal areolet is much longer than the radial; the pobrachial nervure is obsolete. The transverse median nervure in the fore wings is not interstitial being received shortly beyond the transverse basal. Abdominal petiole long, longer than the 2nd and 3rd segments united; it is of uniform thickness throughout and is nearly as wide as the 2nd segment. The 2nd segment bears 2 narrow furrows which extend from the base to the apex; the suturiform articulation especially at the sides, and is slightly curved. The ovipositor is long. The anal nervure in the hind wings is interstitial. The hinder coxæ are not produced in front.

This genus does not fit very well into any of the tribes of the *Cyclostomi* but may, for the present, be referred to the *Doryctides*. Its characteristic features are the long filiform antennæ, margined occiput, flat scutellum, depressed mesonotum, longish reticulated median segment, long petiole of equal

width and long slender anterior tarsi whose basal joint is nearly as long as the tibiæ.

Halycæa erythrocephala sp. nov.

Black, the head rufous, the long palpi, the base of the 4 hinder tibiæ and the 4 hinder tarsi white; the wings hyaline, distinctly tinted with fuscous of a violaceous tinge, the stigma and nervures black. ♀.

Length 15 mm., terebra 18 mm.

Hab. Kuching, 25th March.

Face closely rugosely punctured and covered sparsely with long fuscous hair; the space between the keels deep; the apex bears some stout longitudinal keels. The upper part of the meso- stoutly irregularly striated at the base; the lower furrow is wide and deep and is stoutly striated, the metapleuræ are more stoutly reticulated than the base, with its base almost smooth. The basal segment of the abdomen is closely and rather strongly rugosely punctured; the punctures run into reticulations in the centre and become finer towards the apex; its base is depressed. The triangular area on the second segment is closely, finely rugosely punctured; there is a smooth line down the centre of the face with a furrow in its middle. The furrow on the base of the mesonotum is wide and smooth: the depression behind it is bordered laterally by 2 irregular keels and there is also a curved keel on the inner side at the base; the space between the 2 keels and outside them are irregularly crenulated. Scutellum depressed in the centre, finely punctured, depressed and rufous in the centre; at its base are 4 short keels. Post scutellum depressed in the centre; its sides broad. Propleuræ stoutly keeled in the centre at the base, the rest is much more finely and closely punctured; the bordering furrows are deep and rufous. The 3rd and 4th segments are alutaceous, opaque; the others smooth and shining. The apices of the tarsal joints are spinose.

MACROCENTRINÆ.

Zele filicornis, sp. nov.

Luteous, smooth and shining; the antennæ almost twice the length of the body; very slender, black, the scape rufous: the

flagellum covered with a microscopic pile; the wings clear hyaline; the nervures and stigma black: ocelli large, and in a black patch; the parapsidal furrows striated on the apical half; the metanotum shagreened and obscurely transversely striated. ♀.

Length 9 mm.

Hab. Kuching.

There is a distinct keel on the metapleuræ above the middle; a roundly curved one on the apex of the metanotum: the hinder tibiæ are long, compressed and reach near to the apex of the petiole; it is distinctly narrowed at the base behind the spiracles, which project; it is as long as the 2nd and 3rd joints united. The marginal cellule is not divided, in the hind wings, by a transverse nervure.

AGATHIDINÆ.

Balcemena, gen. nov.

Areolet narrowed at the top, the nervures, however, not touching. Second transverse cubital nervure without a process. Radial cellule long and narrow. First cubital and first discoidal cellules not separated. Front not much depressed and without keels; there are two short keels between the antennæ. Central lobe of mesonotum raised; the parapsidal furrows indistinct. Apex of scutellum with a stout transverse keel. The base of the median segment obliquely depressed; there are two longitudinal keels which form a closed longitudinal narrow area in the centre, these being the only keels on it. All the claws are bifid. The ovipositor is short; its sheaths broad. The antennæ are longer than the body and taper towards the apex; the basal joints of the flagellum are equal in length. The apical three joints of the maxillary palpi are not lentical or compressed and are not much shorter than the basal.

May be known by the long, narrow wings, with the long cubital and raidal cellules in both wings, by the very short ovipositor which hardly projects, by the single central area on the median segment, by the short, raised, distinctly separated middle lobe of the mesonotum, which does not reach to the middle, and by the long antennæ and hind legs.

Balcemena longicollis, sp. nov.

Black, smooth and shining; the head, pro- and mesothorax ferruginous; the antennæ longer than the body, black, the scape rufous below; the wings long, ample, uniformly dark fuscous, with a violaceous tinge; the nervures and stigma black; there are two small hyaline spots below the base of the stigma. ♀.

Length 14 mm.

Hab. Kuching.

The antennæ taper towards the apex; almost bare. Face and clypeus thickly covered with fuscous pubescence. Teeth of mandibles black. Prothorax elongate; the middle lobe of the mesonotum roundly raised and separated from the lateral, which are flat. Scutellum sparsely haired; its apex bounded above by a flat plate with rounded sides. Post-scutellum deeply depressed and bordered by stout keels; behind its centre is a stout longitudinal keel. Median segment thickly covered with black pubescence. There is a narrow oblique furrow below the tegulæ; the large oblique depression on the apex of the mesopleuræ below is stoutly crenulated. Legs, with the calcaria, thickly covered with short black hair. The ventral surface of the abdomen is white at the base; the sheath of the ovipositor is black, and is covered with black hair

Troticus melamopterus, sp. nov.

Head below the eyes and the pro- and mesothorax rufous; the four front legs of a paler rufous colour; the wings dark fuscous, the base of the 1st cubital cellule and a small narrow cloud below it, hyaline; the antennæ black, thickly covered with stiff black pubesence. ♀.

Length 8 mm.

Hab. Kuching.

Face and clypeus distinctly punctured and thickly covered with fuscous pubescence. Mesonotum rufo-fuscous. The central area on the metanotum is coarsely transversly striated, extends from the base to the apex and is slightly narrowed at the base; there are two lateral areæ; a large basal one extending beyond the middle, coarsely aciculated on the outer side at the base and with two or three stout transverse keels near the centre, the lower

one being roundly and deeply curved and is united to a curved outer keel which extends to the apex of the segment; the apical area has a short upper and a longer curved lower keel; below the spiracles are 3 stout irregular keels. Abdomen smooth and shining; the 2nd segment is slightly depressed on the sides at the base.

Disophrys fuscicornis, sp. nov.

Black: the head, prothorax and mesonotum rufous; the front tibiæ and tarsi rufo-testaceous; the wings dark fuscous to the 2nd cubital cellule, beyond that, milk-white; the base of the stigma broadly black; the rest pale rufo-testaceous. ♀.

Length 9 mm.; terebra 7 mm.

Hab. Kuching.

Cheeks and clypeus thickly covered with long white pubescence; the front, vertex and occiput black. Scape of antennæ dark rufous beneath; the base of the flagellum broadly dark brown. Scutellar fovea large, deep and with four stout keels. The central area on the metanotum is obliquely narrowed at the base and apex; there are three stout transverse keels between the middle and the apex of the narrowed upper part; the upper area next to it is broader than long: the lower two are large, of nearly equal size and longer than broad; the spiracular area is large, 3-angled on the inner side, rounded and irregular on the outer, the area next to it is rounded and narrowed above, straight and oblique below. On the centre of the metapleuræ are two irregularly curved keels with some oblique keels between them. Abdomen smooth and shining; the 2nd segment is broadly depressed laterally; the suturiform articulation is broad and smooth.

ICHNEUMONIDÆ.

OPHIONINI.

Aglaophion, gen. nov.

Fore wings without dark coloured blisters; the transverse median nervure in hind wings broken shortly above the middle. Apex of clypeus broadly rounded. Ocelli not large, distinctly separated from each other and from the eyes, which are moder-

ately large and are distinctly separated from the base of the mandibles; they are slightly emarginate on the inner side.

Claws pectinated. Disco-cubital nervure originating distinctly before the discoidal nervure. Scutellum large, longer than broad, distinctly raised and separated. The median and submedian cellules in front wings equal in length; there is no stump of a nervure on the disco-cubital nervure. Meta-thorax stoutly longitudinally and transversely striated. Ovipositor short.

In Ashmead's arrangement (Bull. U. S. Nat. Mus. xxiii, 86) this genus would come nearest to the American *Thyreodon*, which may be known from it by the apex of the clypeus being sub-angularly pointed, not broadly rounded, by the transverse median nervure in the hind wings being broken near the top and by the disco-cubital nervure being broadly rounded, not sharply angled in the middle as in the present genus. The transverse median nervure is received very shortly behind the transverse basal, almost interstitial with it. The apex of the 3rd abdominal segment, on the back, is roundly narrowed towards the base and is incised in the centre above.

Aglaophion flavinervis, sp. nov.

Black, with a metallic blue tinge, the face, clypeus, the lower half of the outer orbits, the malar space, the outer edge of the mesonotum at the base, the scutellum, post-scutellum, the centre of the median segment at the base, its apical half, the lower edge of the pronotum, the base and lower edge of the mesopleuræ and the greater part of the metapleuræ, rufo-testaceous; the four anterior legs of a paler, more yellowish testaceous colour; the hinder legs black, their femora with a bluish tinge. Wings yellowish-hyaline, the nervures yellow; their apex smoky. ♀

Length 22 mm.

Hab. Matang, 3,200 feet.

Antennæ as long as the abdomen, stout, tapering towards the apex, black, covered with a microscopic down. Face closely, distinctly and uniformly punctured; the clypeus more strongly and sparsely punctured in the middle; the foveæ large, black. Mandiblular teeth black, the centre punctured. Palpi dark

testaceous. Front and centre of vertex smooth and shining; the sides of the latter closely punctured; the vertex widely and deeply furrowed in the centre. Mesonotum closely and minutely punctured; the scutellum rugosely punctured. Base of median segment with two stout wrinkled keels down the centre; the sides stoutly, irregularly transversely striated; the apical slope is stoutly, irregularly longitudinally striated; the striæ are curved. Pro- and mesopleuræ smooth; the former obliquely striated below; the meta- coarsely reticulated except on the obliquely depressed base, there is a longish black mark on the base, which becomes obliquely, gradually wider towards the apex, on the apex above there is a large, oblique, somewhat square, black mark. Abdomen smooth and shining; the sides and lower side of the petiole testaceous.

Enicospilus nigronotatus, sp. nov.

Dark luteous: the mesonotum, the base of the scutellum, the breast and the third and following segments of the abdomen black, the face and the eye orbits narrowly pallid yellow; the wings hyaline, the nervures and stigma black; the disco-cubital cellule with a small round and a narrow curved longish horny point. ♀.

Length 30 mm.

Hab. Kuching.

Face slightly blistered in the centre, the sides minutely punctured; the clypeus smooth. Mesonotum smooth and shining. Scutellum obscurely punctured at the base, the rest minutely, irregularly longitudinally striated. Median segment at the base behind the keel smooth; the rest in the centre stoutly, longitudinally striated; the striæ being curved; laterally it is stoutly obliquely striated and irregularly reticulated. Pro- and mesopleuræ smooth; the lower half of the latter finely and closely longitudinally striated. The basal half of the meta-pleurae bears some curved narrow striae; the rest is stoutly obliquely striated. Abdomen smooth and shining; the apical segments covered with a white down; the sheath of the ovipositor black. Tibiæ and tarsi thickly covered with short stiff fulvous pubescence.

PIMPLINI.

Rhyssa maculipennis, Sm.

This fine species has been taken at Kuching by Mr. Shelford. It varies in size from 20 to 27 mm. and the yellow markings on the thorax vary in size and number, as does also the amount of black on the legs.

Epirhyssa nigrobalteata, sp. nov.

Luteous; the vertex, occiput, the front broadly in the middle except for a square mark in the centre. The mesonotum, except for a squarish mark in the centre, the apical slope of the scutellum, a curved line on the apex of the median segment, the propleuræ broadly in the middle, the base of the mesosternum, an oblique mark on the lower side of the mesopleuræ at the base, the base and lower side of the metapleuræ and the base and apices of the abdominal segments, black. Legs coloured like the body; a line on the femora above, the knees, the apical joint of the four front tarsi; the apices of the other joints of of the apex of the hinder tibiæ and the whole of the hinder tarsi, black. Wings hyaline, with a faint cloud in the apex of the radial cellule; the stigma and nervures black. ♀.

Length 17; terebra 17 mm.

Hab. Kuching.

Antennae black, fuscous underneath. Face punctured, transversely in the centre. Mandibles black. The basal slope of the middle lobe of the mesonotum is smooth and has a plumbeous hue; so also is the apical slope which is oblique. Scutellum closely transversely striated in the middle. The middle segments of the abdomen are punctured and finely transversely striated in the middle. The black basal band on the 2nd and 3rd segments are incised in the middle, on the others it becomes prolonged down the middle, the prolongation becoming gradually longer, until on the penultimate segment it extends to the apex; on this segment it is of equal width throughout; the last segment is entirely black. The recurrent nervure in the fore wings is interstitial.

To *Epirhyssa* clearly belongs *Macrogaster flavopictus* Sm. (Proc. Linn. Soc. 1857,121) from Singapore.

Epirhyssa bimaculata, sp. nov.

Luteous: the vertex and front broadly, the occiput, the mesonotum, except for two small lines in the centre, the apex of the scutellum and post scutellum, a mark on the lower side of the propleuræ, the sides and apex of the 2nd segment and the others, except for a transverse band near the apex, black. The femora more or less brownish above; the base of the 4 posterior tibiæ and the apex of the hinder tibiæ, the apices of the fore and hinder tarsi and the middle entirely, black. Wings hyaline, with a fulvous tinge, the stigma testaceous, the nervures darker. ♀

Length 12 mm. terebra 13 mm.

Hab. Kuching.

Mandibles black. Face closely transversely punctured. The basal lobe of the mesonotum is more strongly transversely striated than the others and is widely depressed at the base. The scutellum is not distinctly transversely striated. Pleuræ smooth. The recurrent nervure is not quite interstitial, being received very shortly beyond the transverse cubital, which is longer than usual; the transverse median nervure is received shortly beyond the transverse median. The basal segment of the abdomen is short and broad and of uniform breadth.

Echthromorpha laeva, sp. nov.

Black, smooth and shining: the face, clypeus, mandibles, palpi, outer orbits, the inner more narrowly, two lines on the mesonotum, dilated at the base, scutellum, post-scutellum, the median segment except for a broad band in the centre, the base of the propleuræ, the tubercles, the mesopleuræ broadly and the apices of all the abdominal segments, pale yellow. Wings hyaline, the stigma testaceous, the apical cloud extends half way into the cubital cellule. Antennæ black, the scape yellow, the base of the flagellum brownish beneath. ♂

Length 12 mm.

Hab. Singapore.

Antennæ longer than the body; the middle and apical joints are dilated at the base and apex and are covered with short stiff pubescence; the apical joint is flattened and is distinctly

longer than the preceding. The front is raised in the middle; the raised part has oblique sides. Parapsidal furrows obsolete. Scutellum roundly convex, distinctly raised above the mesonotum; its sides are not margined. The transverse furrows on segments 2 to 5 of the abdomen are distinct and smooth. There is a black mark on the apex of the hinder coxæ above; the hinder coxæ are broadly lined with black above on both sides and below; the hinder tibiæ are black at the base; the hinder tarsi black. The black line on the metanotum has the basal half dilated.

Comes near to *E. ornatipes*, Cam., which may be known by the punctured thorax and abdomen, etc.

Trichiothecus, gen. nov.

Wings uniformly dark fuscous; the areolet oblique, the apical abscissa twice the length of the basal, shortly, but distinctly appendiculated; the recurrent nervure is received near the apex. Clypeus not separated from the face; its apex depressed and roundly emarginated. Transverse median nervure in hind wings broken shortly below the middle. Abdominal segments closely rugosely punctured; segments 2 to 5 with rounded furrows at base and apex. Claws large, simple. Metathorax smooth without keels.

Eyes large, the malar space moderate; the temples are also moderate and are obliquely narrowed; the occiput roundly incised, above obliquely narrowed. Antennæ moderately stout, as long as the abdomen; its last joint is distinctly shorter than the preceding two united. Eyes entire, diverging very slightly above. Metatarsus nearly as long as the other joints united. Ovipositor long.

A genus easily known by the incised apex of clypeus, by the black wings with the appendiculated irregular areolet and by the peculiar colouration. It comes near to *Erythropimpla*, Ashm., and *Charitopimpla*, Cam. The latter may be known from it by the clypeus being separated from the face by a transverse furrow, by the areolet being small, triangular, not appendiculated or oblique, by the hyaline wings, and the abdominal segments are wider than long, not longer than wide. There are two bullæ on the 2nd transverse cubital and two on the recurrent nervure.

To this genus probably belongs *Pimpla viridipennis*, Sm. from Celebes. It has the same general colouration as our species, but with the hinder femora red; the median segment being also red.

Trichiothecus ruficeps, sp. nov.

Black; the head pro- and mesothorax and the 4 anterior legs ferruginous: the wings uniformly fucous-violaceous. ♀.

Length 18 mm. terebra 15 mm.

Hab. Kuching.

Antennæ black, the scape rufous. Head smooth and shining; the face sparsely covered with black pubescence; the clypeus with longer hair. Mandibles ferruginous, their teeth black. Metanotum covered with black pubescence, its base rufous. Petiole smooth and shining; its centre broadly raised in the centre which bears some large scattered punctures. The 2nd to 5th segments are closely and somewhat strongly punctured, except on their apices; the depressions have a stout keel in the middle. Tibiæ and tarsi thickly covered with stiff black pubescence. Sheath of the ovipositor thickly covered with short, stiff black pubescence.

Xanthopimpla latebalteata, sp. nov.

Rufous-yellow; the vertex, the front broadly in the middle, the upper part of the vertex to the middle, the mesonotum except at the base, the base of the metanotum to shortly below the middle of the areola and broad transverse bands on all the abdomial segments—occupying more than the basal half of the segments and the whole of the apical one—black. Wings hyaline, the apex slightly infuscated. Areola large, longer than wide. Legs immaculate. Antennae black, brownish beneath; the scape yellow beneath. ♂.

Length 14 mm.

Hab. Kuching.

Face distinctly punctured, thickly covered with white pubescence. The basal central part of the mesonotum is more distinctly raised than usual; the furrows do not extend beyond the basal third. Scutellum and post-scutellum stoutly keeled laterally. Areola distinctly longer than wide, the basal two thirds obliquely narrow; the lateral keel is received shortly, but clearly, beyond its middle; the apex is transverse. The

tooth-bearing area is 4-angled, and is narrowed on the inner side.

Would come into Krieger's section G, if it were not for the black mark on the occiput.

Xanthopimpla nigritarsis, sp. nov.

Yellow, a triangular mark enclosing the ocelli, a broad band on the mesonotum, trilobate at the apex, between the base of the tegulæ and the base of the mesonotum; its apex and the scutellum on the lower part of the basal slope, a line of almost equal width throughout on the base of the metanotum; a large mark on the 1st and apical two segments and two large broad marks on the others, black. A line on the under side of the hinder femora, their apex narrowly, the base of the hinder tibiæ and the four hinder tarsi, black. Wings hyaline, their apex slightly infuscated, the stigma and nervures black. ♂.

Length 12 mm.

Hab. Kuching.

Face and base of clypeus closely, but not strongly, punctured. The 3 lobes of the black line on the mesonotum are rounded. The parapsidal furrows are deep at the base and extend near to the middle. The scutellar keels are narrow, leaf-like and become narrowed towards the apex. The areola is large, 6-angled; the base obliquely narrowed, the apex transverse; the tooth-bearing area is 4-angled, transverse of equal width and is not much smaller than the area at its base. The basal abdominal segment smooth, its keels stout; the other segments are closely and distinctly punctured, with their furrows striated. The black mark on the 1st segment is large, incised at the base and apex in the centre; the basal incision is small, the apical larger and wider and with oblique sides. The ten intermediate marks are large and wider than long; the 1st and last pair are smaller than the others.

Belongs to Krieger's section G. *l. c.* p. 92.

Xanthopimpla maculifrons, sp. nov.

Luteous: the ocellar region, the occiput in the middle, the middle of the front, the mesonotum, except for a large squarish mark in the middle, close to the apex, the base of the meso-

notum—the mark narrowed in the middle—a large mark on the 1st and on the apical two segments and two large marks, broader than long, on all the others, a mark on all the tibiæ at the base, a large mark on the hinder coxæ, one on the outer and inner side of the hinder trochanters, a large line on the outer and inner side of the hinder femora and on the base of the last joint of the four hinder tarsi, black. Wings hyaline, the apex with a distinct smoky cloud. Areola large, 6-angled, of almost equal width at base and apex and projecting angularly in the middle. Ovipositor shorter than the hinder tibiæ. ♀.

Length 14 mm.; terebra nearly 3 mm.

Hab. Kuching.

Antennæ black: the scape yellow below: the base of the flagellum beneath and the apical joints brownish. Face closely punctured and thickly covered with white pubescence. The parapsidal furrows are deep and distinct only on the basal third of the mesonotum. The scutellum is distinctly keeled on the sides, not so sharply behind; the post-scutellum is distinctly keeled laterally. The tooth-bearing area is large and is of equal width. The black on the areola does not reach to its middle, on the sides it extends near to the middle of the tooth-bearing area. The keel on the metapleuræ does not reach the base. The middle segments of the abdomen are closely punctured.

Comes into Krieger's Section E, *l. c.* p. 81.

Xanthopimpla brunneciornis, sp. nov.

Luteous, the ocellar region, three roundish marks on the base of the mesonotum, the central being broader than long, the lateral longer than broad, two marks on the 1st, 2nd, 3rd, 4th and 6th abdominal segments and a mark on the base of the hinder tibiæ, black: the wings hyaline, the nervures and stigma black; the areola is wider than long and gets gradually wider towards the apex; the spiracular area is triangular; the ovipositor is longer than the hinder tibiæ. ♀.

Length 12 mm. ovipositor 4 mm.

Face, clypeus and labrum closely and finely punctured, the face more strongly than the clypeus and it is thickly covered with pale pubescence. Thorax smooth and shining; the parapsidal

furrows do not reach to the centre of the mesonotum. The areola is 4-angled; it becomes gradually, but not much, widened towards the apex, which is transverse; it is moderately large, is wider than long and is transverse at the apex; the tooth-bearing area is longish, oblique, triangular, the keels uniting on the inner side. The keel on the metapleuræ is narrowed at the base. Abdomen smooth at the base and apex; the 2nd and 3rd segments are closely, but not strongly punctured; the apical transverse furrows are longitudinally striated. The marks on the 3rd segment are larger and more oval than the others; on the 4th they are smaller; on the 5th they are longer and broader, the last pair are oval. The antennæ are brownish-red below; the scape largely black above.

Comes near to *X. ruficornis*, Krieger.

Pœcilopimpla, gen. nov.

Abdominal segments smooth, impunctate, broader than long, without transverse or oblique depressions; the petiole broad, scarcely narrowed at the base. Scutellum roundly convex: its basal slope only keeled. Median segment with three large areæ on the base. Temples moderately large, roundly narrowed. Occiput rounded inwardly, margined. Vertex obliquely, roundly depressed. Eyes emarginate on the inner side, large, reaching near to the base of the mandibles. Clypeus short, separated from the face, depressed obliquely below and with the apex distinctly margined. Labrum not projecting. Mandibular teeth large and of equal size. Parapsidal furrows only indicated at the base. Areolet small, oblique, 5-angled, narrowed above. Transverse median nervure not interstitial, being received shortly beyond the transverse basal. The transverse median nervure in hind wings broken shortly above the middle. Legs stout; the claws long, simple. The apical abdominal segment is broad, not narrowed as usual, at the apex; it is furrowed down the middle, this being also the case with the 2nd segment.

The antennæ are stout, as long as the body and hardly taper towards the apex. The apical abscissa of the radius is not curved upwards; there is a short stump of a nervure on the cubito-disco nervure.

Comes near to *Xanthopimpla* which may be known from it by the orbits being straight and oblique, not rounded, by the occiput being transverse, not roundly incised, by the abdomen being distinctly punctured and marked with transverse furrows and by the scutellum being keeled along the sides. The middle vein in the hind wings is, like the others, distinct to the apex.

Pœcilopimpla lucida, sp. nov.

Luteous, the ocellar region, the vertex broadly behind them, three broad marks on the mesonotum, occupying almost all the lobes, a small central and a larger mark on either side on the base of the metanotum, all three rounded at the apex, the base of the propleuræ, the abdominal segments broadly, the base and apex of the four hinder femora and tibiæ and the hinder tarsi, black. Wings hyaline, the nervures and stigma black. Antennæ black, the scape yellow, the flagellum brownish beneath. ♂.

Length 10 mm.

Hab. Kuching.

Face closely punctured, roundly concave, keeled in the middle. Parapsidal furrows distinct at the base only. Median segment smooth and shining, the areola square, the tooth bearing area confluent with that at the base. Abdomen smooth and shining; the 2nd segment is deeply furrowed in the middle at the base; its oblique lateral furrows are smooth.

XORIDINI.

Cyanoxorides, gen. nov.

Antennæ stout, densely covered with short stiff pubescence: the 3rd joint hardly longer than the 4th, the apex from the 20th joint geniculated, bent back and separated from the rest like the lash of a whip. Clypeus short, broad, clearly separated from the face, depressed; its apex transverse. There is a stout keel between the antennæ. Occiput not very distinctly margined. Mandibles edentate, broad at the base, becoming gradually narrowed towards the apex. Mesonotum trilobate. Median segment areolated; the central area extends from the base to the apex and has the apical half much wider than the basal. Spiracles linear. The apical half of the mesosternum separated from

the pleuræ by a curved furrow. Areolet in fore wings absent; the transverse cubital nervure is short, the recurrent nervure is received shortly beyond it; the transverse median very shortly behind the transverse basal, almost interstitial. In the hind wings the cubital nervure is broken below the middle. The basal segment of the abdomen is large, becoming gradually wider from the base to the apex; the spiracles are placed shortly behind the middle; the basal three segments bear curved or oblique depressions; the last segment is larger than the preceding and bears distinct cerci; the hypopygium is smooth; the ovipositor is not quite so long as the body.

The prothorax is long, the tegulæ being placed not far from the middle of the thorax; the sides, at the base, project into teeth; there is an oblique keel near the base of the propleuræ; the ocelli are widely separated from the edge of the vertex; the tarsi are short, compared with the tibiæ; the basal joint of the hinder is slightly longer than the others united; the four front tibiæ are sharply contracted at the base, as is also the case, but to a less extent, with the posterior; the claws are smooth and simple. The temples are large and there is a distinct malar space.

To this genus probably belong *Glypta fracticornis*, Sm., from Mysol and *Xylonomus fracticornis*, Sm., from Batchian.

Cyanoxorides Brookei, sp. nov.

Metallic blue, thickly covered with white pubescence, the antennæ black with a white band beyond the middle; the wings hyaline, the nervures and stigma black; there is a narrow fuscous cloud bordering the transverse basal and the transverse median nervures behind; and a broader cloud on the basal half of the radial cellule, extending along the inner side of the recurrent nervure to the opposite side of the wing. ♀.

Length 16 mm.; terebra 11 mm.

Hab. Kuching.

Front and vertex smooth and shining, with a few scattered punctures; the outer edge of the vertex and the temples thickly covered with white hair. Face closely punctured, its upper part finely transversely striated and covered with white pubescence; the clypeus impunctate; the labrum fuscous, smooth, with a row of long hairs on the middle and apex. Mandibles

black. Apical half of the middle lobe of the mesonotum coarsely transversely reticulated, its apex stoutly longitudinally striated; the basal half is sparsely punctured. Scutellum sparsely punctured laterally; the post-scutellum is furrowed on the inner side of the lateral keels. The metapleuræ at the base are sparsely punctured; the rest of them on the upper half are closely and rather strongly punctured, the punctures forming rows. The basal 3 segments of the abdomen are closely punctured, except on the central depression on the petiole; the oblique furrows are finely striated. The apical segments are smooth. The anterior tarsi are black; thickly covered with white pubescence; the anterior tibiæ are black in front; the rest of the legs are of a darker blue than the body.

Spiloxori les, gen. nov.

Antennæ slender, short, ringed with white, the apical four joints geniculated and angularly bent back from the others; the 3rd joint is distinctly longer than the 4th. Face raised in the centre, clearly separated from the lateral part; its apex rounded. Occiput distinctly margined. The apex of the scutellum distinctly keeled on the sides; the post-scutellum stoutly keeled laterally. The areola is widened at the apex and is separated from the posterior median by a stout transverse keel. The transverse median nervure is placed behind the transverse basal; the recurrent nervure is received distinctly beyond the transverse cubital by a greater distance than the length of the latter. The cubital nervure is broken shortly below the middle. The 1st segment of the abdomen is roundly convex and is without any depressions or furrows; the 2nd and 3rd segments have oblique depressions on the base. The basal joint of the hinder tarsi is shorter than the following joints united.

This genus may be separated from *Cyanoxorides* as follows:

Antennæ short, slender, not densely pilose, the 3rd joint distinctly longer than the 4th; the lash of the antennæ only 4-jointed, the face clearly separated from the orbits; the body not metallic blue: the areola separated from the posterior median area by a stout transverse keel; the basal joint of the hinder tarsi shorter than the other joints united. *Spiloxorides.*

Antennæ long, stout, densely pilose, the 3rd joint not much longer than the 4th; the lash of the antennæ many jointed; the face not clearly separated from the orbits; body metallic blue; the areola not separated from the posterior median area; the basal joint of the hinder tarsi longer than the other joints united. *Cyanoxorides.*

Spiloxorides ruficeps, sp. nov.

Black, the head, the scape of the antennæ and the greater part of the fore legs, red; the base of the flagellum and a band beyond its middle and the apices of the 3rd to 6th abdominal segments narrowly and a broad band on the sheath of the ovipositor, white; the wings hyaline, the base of the stigma broadly white; there is a large fuscous band at the base of the stigma where it is narrow and it becomes gradually wider towards the end; there is a smaller fuscous cloud on the transverse cubital nervure extending into the radial cellule to the end of the recurrent nervure on its inner side. ♀.

Length 11 mm.; terebra 6 to 7 mm.

Hab. Kuching.

Vertex smooth and shining; the front keeled down the centre and closely and finely transversely striated. The centre of the face is broadly raised; this raised part is slightly narrowed and rounded at the apex, is bordered laterally by a keel and is coarsely, irregularly transversely striated; the depressed sides have a paler, more yellowish tint and are finely transversely striated on the inner side. The clypeus is separated from the malar space by a furrow; its apex is obliquely depressed and is transverse. The labrum is slightly rounded from the middle and is thickly covered with long golden hair. Mandibles black, narrowly dark rufous at the base. Mesonotum shining, aciculated crenulated, round the edges. Scutellum smooth and shining; the post-scutellum is broadly depressed and has the lateral keels much stouter than those on the scutellum. The metanotum is aciculated; its keels are bordered by short broken ones on either side. Pro- and mesopleuræ smooth and shining; the upper half of the meta- coarsely reticulated. Abdomen thickly covered with white pubescence; closely, minutely

punctured, more strongly on the basal than on the apical segments; the depressions are minutely striated. The ventral surface is pale brick-coloured. The front legs are dark rufous, the trochanters and tarsi darker coloured; the tibiæ have a pale yellow streak in front; the middle femora are bright rufous in front, dark behind.

Lethulia, gen. nov.

Areolet absent: the recurrent nervure united with the transverse cubital. Antennæ long and slender, the flagellum broadly ringed with white. Head cubital; the occiput margined, temples large, the malar space wide. Clypeus clearly separated from the face, depressed, its apex transverse and with a distinct margin, below which it is obliquely depressed. Mandibles broad; they have a short blunt subapical tooth. Parapsidal furrows wide, deep, the mesonotum distinctly trilobate. Metanotum with 3 distinct areæ at the base; spiracles linear, placed distinctly behind the middle. The hind legs longer than the others; their coxæ large, their trochanters long and distinctly narrower than the femora which are stouter than usual; their tibiæ are much longer than them; calcaria short; the 2 hinder claws are simple. The anterior tarsi are twice the length of the tibiæ; their claws and those of the middle bifid; the basal joint of all the tarsi is shorter than the 4 following united. If any thing, the recurrent nervure is received on the outer side of the transverse cubital; there is no stump of a nervure on the cubito-disco nervure.

This genus comes near to *Fislistina*; it may be known from it by the transverse, not rounded, apex of the clypeus and by its being clearly separated from the face, by the antennæ being longer, more slender and broadly ringed with white, by the very long hinder trochanters, by the petiole being more slender and longer than the 2 following segments united and by the hinder tibiae being much longer compared with the tarsi.

Lethulia flavipes, sp. nov.

Black, the legs yellow, with the hinder coxæ and femora black; the antennæ white, broadly black at the base and apex;

the abdomen yellow broadly banded with black; the wings hyaline, with a narrow cloud below the stigma, and the apex is narrowly smoky. ♀.

Length 15 mm.; ovipositor 12 mm.

Hab. Kuching.

Head black, the face and clypeus and the malar space yellow, the face with a black mark in the centre; the inner orbits are yellow to near the upper ocelli. Front and vertex smooth and shining; the front with a distinct keel down the middle, extending from the ocelli to the base of the antennæ. Mandibles black, the base with large elongate punctures. Palpi yellow. Thorax smooth; the centre of the propleuræ striated; the lower part of the meso- obscurely and the meta- more distinctly punctured. Parapsidal furrows and the depression at the apex of the middle lobe transversely striated. The part behind the basal areæ on the median segment is irregularly longitudinally striated and there are some irregular transverse keels down the sides; the centre at the apex is depressed; the depression becomes gradually wider to beyond the middle, it then becoming gradually obliquely narrowed to the apex, this part being bounded by distinct keels. Legs thickly covered with white pubescence. The basal two-thirds of the 1st and the basal halves of the 2nd to 5th abdominal segments black.

Cryptina.

Mesostenini.

Skeatia flavipes, sp. nov.

Black; the middle of the flagellum of the antennæ broadly white; a large mark of equal width throughout on the centre of the face, a small mark on the vertex touching the eyes, the tegulæ, scutellum, post-scutellum, a minute mark on the tubercles, a triangular mark under the hinder wings, the sides of the metanotum, a narrower line round the top and the spines, lemon-yellow. Legs lemon-yellow; the hinder trochanters, apical third of hinder femora, and the apical fourth of the hinder tibiæ black. The abdominal segments banded with yellow at the apex; the last segment is entirely yellow. Wings hyaline, the nervures and stigma are black. ♀.

Length 13 mm.; terebra 3 mm.

Hab. Kuching, April 25th.

Face rugose, on the lower side obscurely longitudinally striated. Front with a distinct keel down the middle; the sides with irregularly twisted longitudinal or oblique keels. The ocelli are bordered laterally by a furrow. Mesonotum aciculated, closely and finely transversely striated along the furrows, which bear some transverse striæ. Scutellar depression with a stout, longitudinal keel in the centre. Scutellums smooth. Behind the postscutellum is a curved keel, with a more distinct longitudinal one running down from its centre. The basal area on the mesonotum is slightly longer than its width at the base; it becomes narrowed towards the apex which is transverse. The base behind the keel is strongly aciculated; the rest of the segment is longitudinally reticulated; the apical slope transversely so; the spines are long and project obliquely outwardly. Propleuræ stoutly in the middle and at the apex longitudinally striated. Mesopleuræ stoutly obliquely reticulated, except at the apex above; the furrow is crenulated. Metapleuræ closely and rather strongly obliquely striated; the striæ are more or less curved. Petiole smooth and shining; the 2nd and 3rd segments are aciculated; the others smooth. The 4 front tarsi are black.

Skeatia varipes, sp. nov.

Black; the inner orbits, the outer broadly from near the top, the face and clypeus, a line on the pronotum, a mark in the centre of the mesonotum, the scutellar keels, the scutellums, the sides of the metanotum, a curved line on its top uniting the lateral lines, the spines, the tubercles, the lower part of the mesopleuræ broadly—the mark with a curved incision in the middle above—the mesosternum, a mark under the hind wings and a large oblique mark in the centre of the metapleuræ, yellow. The 4 front legs pale yellow, their femora lined above with black, as are also the middle tibiæ behind; the hinder coxæ yellow, largely marked with black on the outer side; the hinder femora rufous, black from shortly beyond the middle, the tibiæ; and tarsi yellow, with the apical third of the tibiæ, black. Wings hyaline, the stigma and nervures fuscous black. ♀.

Length 14 mm.

Hab. Matang.

Antennæ black, the 5th to 6th joints white. Face strongly, but not very closely, punctured; the centre above closely transversely striated; the clypeus is more sparsely punctured. Mandibles black, broadly pale-yellow at the base. Front irregularly transversely striated and keeled down the centre. Mesonotum closely rugosely punctured; the parapsidal furrows transversely striated; the apex is more strongly transversely striated. The basal area on the median segment is smooth and shining; the rest of the metanotum is coarsely irregularly reticulated and punctured. The upper part of the propleuræ is punctured in front, striated behind; the lower part is stoutly distinctly striated. Mesopleuræ strongly and closely striated; obliquely below, more irregularly at the base above. Metapleuræ irregularly obliquely striated. Post-petiole irregularly punctured, the 2nd and 3rd segments closely and regulary punctured.

May be known from *S. flavipes* by the large yellow mark on the mesopleuræ, by the yellow mesosternum, by the mark on the mesonotum, by the rufous hinder tibiæ, by the yellow line on the metanotum, being semicircular, not transverse, etc. It is a much more robust species.

Skeatia carinata, sp. nov.

Black; the face, clypeus, inner orbits narrowly, the malar space, the pleuræ, the scutellum, post-scutellum, the space at their sides, the apical slope of the metanotum, a semicircular mark in the middle above it, the spines and the apices of the abdominal segments, yellow; the four front legs pale yellow; the hinder legs black, their coxæ for the greater part yellow, the tarsi white; the wings hyaline, the nervures and stigma black. ♀.

Length 13 mm.; terebra 5 to 6 mm.

Hab. Kuching.

Antennæ black; the 5th to 14th joints white. Face punctured, and obsecurely transversely striated in the middle; on the top is a longitudinal keel which extends upwards between the antennæ. The lower part of the front is yellow; the black upper part is wrinkled in the middle. Middle lobe of mesono-

tum coarsely transversely straited, the lateral irregularly rugosely punctured; the apex is rufous and bears four stout longitudinal keels. There are 4 longitudinal keels on the scutellar depression; the scutellum is broadly black on the base. The lateral scutellar depressions and the depression on the base of the metanotum are stoutly striated. The basal area on the metanotum is raised, smooth and open at the sides on the base; the rest of the metanotum is closely, strongly striated; the striæ are straight at the base, on the rest they are curved downwards in the middle. Mesopleuræ on the lower side obliquely striated at the base; the meta- stoutly obliquely striated and broadly depressed in the middle. The spines are short, broad and rounded at the apex. Abdomen smooth and shining.

**Melcha maculipennis*, sp. nov.

Black; the median segment for the greater part red; the tegulæ, scutellum, post petiole, the apical third of the 2nd abdominal segment and the whole of the apical two whitish-yellow; the four front legs rufo-testaceous, the coxæ paler, the middle joints of their tarsi white, the base and apex black; hinder coxæ rufous; the trochanters, femora and base of tarsi blackish; the apical and basal joints of tarsi black, the middle joints white. Wings hyaline; there is a brownish cloud between the base of the stigma and the areolet and extending nearly to the opposite side of the wing where it becomes fainter and narrower; the apex is faintly clouded. ♀.

Length 9 mm.; ovipositor 2 mm.

Hab. Kuching.

Antennæ long, black, the 7th to the 11th joints white except above, the scape dark rufous. Front above obscurely longitudinally, below obscurely transversely striated. Thorax shining; the mesopleuræ alutaceous; the furrows more or less crenulated. Scutellum smooth and shining. Base of median segment smooth and shining; the part between the two keels rugose, the apical slope reticulated, the upper part more distinctly than the lower. Abdomen shining; the 2nd and 3rd segments are closely punctured; the gastroceli smooth and rufous.

* *Melcha*, Cam. Ann. and Mag. Nat. Hist. Ser. 7, Vol. IX, 153.

The metanotal area does not reach to the base of the segment; it is open behind, almost square and of almost equal width throughout.

Melcha annulipes, sp. nov.

Black, shining, the apical slope of the median segment, the apices of the 1st, 2nd and 5th in the centre and the whole of the 6th and 7th segments above, white; the base and sides of the petiole rufous; the 4 anterior coxæ and trochanters; the femora rufous, the tibiæ pale, fuscous behind, the anterior tarsi blackish, the middle fuscous, white in the middle; the hinder coxæ rufous; the apical joint of the trochanters black; the femora rufous black above; the tarsi white, the last joint black; the basal third of the hinder tibiæ white. Wings hyaline with a faint cloud behind the areolet and a fainter one on the apex; the stigma and nervures dark fuscous. ♀.

Length 8 mm.; terebra 3 mm.

Hab. Kuching.

Face rugose, the clypeus smooth and shining. Mandibles white, rufous in the middle, the apex black. Palpi white. Front keeled, in the middle obscurely striated, the sides smooth and shining. Mesonotum shining; the tegulæ, tubercles, scutellum and post scutellum white. Base of median segment smooth; the area small, triangular, the nervures uniting before reaching the keel; the rest of the segment closely reticulated; the centre of the apical slope has a rufous tint. Propleuræ striated in the middle; the meso- more closely longitudinally striated, except at the apex above; the meta- closely, somewhat obliquely striated and reticulated. Abdomen very smooth and shining.

Friona varipes, sp. nov.

Black, shining; the scutellum, the post-scutellum, a large mark at its sides behind the wings, a large mark, rounded above, transverse below on the metapleuræ, the apices of the basal 6 abdominal segments and the whole of the 7th, pale yellow; the four anterior legs pale fulvous, the middle pair with a rufous tint; the hinder coxæ dark rufous, broadly yellow at the base above; the trochanters black; the tibiæ blackish, dark rufous at the

base; the tarsi white; the wings hyaline, the stigma and nervures black. ♀.

Length 13 mm.

Hab. Singapore.

Antennæ slender, black, the 11th to 19th joints white. Face coarsely alutaceous, a short mark on it under each antennæ; opaque sparsely covered with short white pubescence. Clypeus roundly convex, smooth and shining. Mandibles broadly white at the base. Labrum and palpi white. Front pro- and mesopleuræ striated, as with the other species of the genus; the metanotum from the transverse keel is transversely, but not very strongly, striated; in the centre of the striated part is a broad yellow line, which unites with a transverse one on the apex. The median segment is thickly covered with long white hair. Abdomen smooth and shining. The coxæ, trochanters and femora are covered with long white; the extreme base of the hinder tarsi and their apical joint black.

ICHNEUMONINA.

JOPPINI.

Cratojoppa maculiceps, sp. nov.

Black; largely marked with pale yellow; including the sides and apex of the scutellum narrowly, the areola and two oblique marks on the apex of the median segment; the legs pallid yellow; the four front femora above, the hinder entirely; the apical half of the middle tibiæ behind, almost the apical two-thirds of the hinder and a narrow band on their base, black; the wings hyaline, the nervures and stigma black. ♀.

Length 17 mm.

Hab. Kuching.

Antennæ black; the 9th to 23rd joints white. Head smooth and shining; the face and clypeus sparsely punctured; on the face are two black lines which become wider below and run into the foveæ. Mandibles and palpi whitish-yellow; the mandibular teeth black. On the thorax, a narrow line on the pronotum, the tubercles, the mesopleuræ below, two small spots on the centre of the mesonotum, the sides and apex of the scutellum narrowly, its keels, the post-scutellum, a conical mark behind

the spiracles, the elongated areola, two oblique marks on the apex of the metanotum outside the posterior median area and the apices of all the abdominal segments (the line on the 2nd being broader than the others), pallid yellow. Mesonotum distinctly and irregularly punctured, except at the apex; the scutellum is more strongly punctured, with a smooth line in the middle on the basal half. Metanotum strongly, deeply and irregularly punctured; the basal areæ on the base and inner sides smooth; the areola has two elongated closely punctured spots in the centre; the posterior median area is stoutly, transversely striated, as is also the spiracular area beyond the spiracles. Pro- and mesopleuræ smooth; the meta- above the keel closely rugosely punctured. Petiole smooth and shining; the 2nd and the 3rd segments are closely punctured, the 2nd mort strongly than the 3rd; their base closely longitudinally striaded in the centre; the gastrocoeli smooth and shining.

The colouration of the body is almost identical with that of *C. robusta*, Cam., but that species may be known from it by the four front legs being without black; and the hinder femora are rufotestaceous, with the apical third black.

Aculeata.

Fossores.

Mutilla attila, sp. nov.

Black, the basal two segments of the abdomen ferruginous; the wings dark fuscous-violaceous paler at the base; the apex of the clypeus transverse, the tegulæ large, black; the outer edge turned up and paler in tint. ♀.

Length 13 mm.

Hab. Lingga.

Front and vertex almost uniformly rugosely punctured; sparsely pilose; the face, clypeus and cheeks thickly covered with long griseous hair. Apical half of clypeus convex, the base flat; its apex transverse. Middle of mandibles rufous. Pronotum and upper part of propleuræ closely rugosely punctured; the rest of pleuræ smooth. Mesonotum shining; bare; the furrows deep; there is an impressed line down the centre. Scutellum coarsely rugosely punctured, the punctures large and

almost forming reticulations; it is not much raised and there is no smooth space. Median segment coarsely reticulated; the basal area reaches to the middle of the segment; it is not much widened at the base and there is a large, wider area on either side at the base. The 2nd cubital cellule is not much shorter than the 3rd; the 2nd cubital nervure is broadly, roundly curved outwardly; the apex of the radius is straight and oblique. The 2nd abdominal segment is narrowed at the base and bulges roundly outwardly; the ventral keel is not very prominent and is narrowed at the apex. The last segment is smooth in the middle; its apex is distinctly raised.

Mutilla Cæcina, sp. nov.

Black, thickly covered with white hair; the 1st and 2nd abdominal segments ferruginous; the wings fuscous with a violaceous tinge: the extreme base of the front and almost the basal half of the posterior pair hyaline, the nervures and stigma black; the apex of clypeus incised. ♂.

Length 12 mm.

Hab. Lingga. November.

Front and vertex some what strongly longitudinally striated; the vertex behind and between the ocelli much more finely striated. Antennal tubercles bright red. Face and clypeus smooth, thickly covered with soft white hair; the apex of the clypeus with a round incision; its middle flat. Mandibles black, rufous in the middle; the palpi black, mixed with fuscous. Pronotum strongly rugosely, closely punctured; its apex thickly covered with depressed dark grey pubescence; the mesonotum is more shining, and more strongly but not so closely, punctured. Scutellum strongly rugosely punctured and covered with long black hair. Median segment strongly reticulated; its central area not quite reaching to the middle; its basal half dilated. The basal half of the propleuræ rugosely reticulated; the apical smooth, with some obscure longitudinal striæ. Mesopleuræ closely rugosely punctured. Metapleuræ irregularly reticulated except in the middle and at the base above. Legs thickly covered with white hair; the spurs pale. The basal abscissa of the radius is slightly curved outwardly; the apical broadly, roundly curved and is longer than the middle two unit-

ed; the 3rd cubital cellule above is distinctly shorter than the 2nd. The 2nd abdominal segment becomes gradually wider towards the middle, it is not being dilated in the middle, nor narrowed at the apex; the last segment has a broad, smooth glabrous band extending from near its base to the apex and becoming gradually wider towards the apex. The ventral keel is slightly dilated at the apex. Tegulæ black on the inner side, the middle rufous, the outer edge paler.

This is a more slenderly built species than *M. attilla*; it may be known from it by the incised apex of the clypeus and by the front and vertex not being uniformly rugosely punctured.

Discolia ocina, sp. nov.

Black; the vertex and the upper half of the outer orbits pale orange; the wings uniformly dark purple-violaceous; the apical half of middle lobe of the mesonotum almost impunctate; the median segment strongly punctured except laterally at the base. ♀.

Length 13 mm.

Hab. Java.

Vertex smooth; the upper part of the front strongly irregularly punctured; the lower opaque, shagreened and distinctly furrowed in the middle. Clypeus smooth, flat, slightly narrowed towards the base; its depressed apex stoutly longitudinally striated. The scutellum is more strongly and closely punctured than the mesonotum. Post-scutellum punctured at the base and the sides. Pleuræ closely punctured. Meso- and metanotum thickly covered with stiff black hair. Abdomen smooth and shining and sparsely covered with short black hair. The hair on the legs is long, stiff and black.

Comes near to *D. humeralis*.

Triscolia crassiceps, sp. nov.

Black, shining, above covered with black hair; the front closely and strongly punctured, the vertex almost impunctate; the temples large, nearly as long as the front half of the head; their sides broadly rounded; the clypeus raised in the centre, flat; its apex with a row of small punctures, the central part of the metanotum and the outer part of the lateral parts closely

and strongly punctured; the abdomen shining, finely punctured on the base of the segments; the hair fringe black; it has a violaceous tint in certain lights; the wings uniformly fuscous-violaceous. ♀.

Length 15 mm.

Hab. Matang, 3600 feet.

Characteristic of this species is the large head, largely developed behind the eyes and as wide as the thorax. Antennæ short, thick and bare. Mandibles almost impunctate, fringed below with long rufous hair. The centre of the prothorax is smooth and shining; the sides strongly and closely punctured. There is a distinct, deep longitudinal furrow on the sides of the mesonotum, which is strongly, but not closely, punctured and has two smooth longitudinal bands near the centre. Scutellum with a band of large punctures round the edges and with a curved row in the middle. Post-scutellum strongly punctured, most sparsely in the centre. The apical slope of the median segment is impunctate. The raised middle part of the mesopleuræ is strongly punctured; the upper and apical parts of the metopleuræ sparsely and not very strongly punctured. Pygidium covered thickly with long black hair.

Comes near *T. Kollari*, Sauss., and *T. macrocephala*, Grib.

Agenia acilla, sp. nov.

Black, shining, smooth, covered with a silvery pile; the wings hyaline; a narrow cloud along the transverse basal and the transverse median nervure (the larger part of it on their outer side) and a wider cloud extending from the base of the stigma to shortly beyond the middle of the 2nd cubital cellule and backwards extending to the discoidal nervure. ♀.

Length 9 to 10 mm.

Hab. Kuching.

Head opaque, alutaceous, the apex of the clypeus smooth and shining. Mandibles rufous behind the apex. Palpi black, the apical joints fuscous; the hair bundle long and black. Hinder ocelli separated by a slightly less distance from each other than they are from the apex. The scutellum and post scutellum shining. The apical half of the median segment is

obscurely transversely striated and thickly covered with silvery pubescence. The tibiæ are not grooved and are sparsely covered with short spines; the tarsi are more thickly spined; there is a straight tooth near the middle of the claws. The 1st transverse cubital nervure is rounded, obliquely bent on the top; the 2nd abscissæ of the radius and cubitus shorter than the 3rd; the 1st recurrent nervure is received almost in the centre of the cellule; the transverse median nervure is received distinctly beyond the transverse basal; the accessory nervure in the hind wings is distinctly appendiculated.

The temples are well developed and rounded broadly behind; the median segment is longer than usual, has an obliquely rounded slope and is indistinctly furrowed down the middle; the pronotum is as long as the mesonotum and is rounded at the apex; the pygidium is thickly covered with long fuscous hair, is opaque, with a shining line in the centre.

Pompilus panyasis, sp. nov.

Black; thickly covered with silvery pile; the wings fuscous-hyaline, the apex from the base of the stigma much darker and with a distinct violaceous tinge; the base of the mesonotum with the sides straight and oblique, the apex of the pronotum therefore not rounded. ♀.

Length 12 mm.

Hab. Penrissen.

Apex of clypeus broadly rounded. Eyes parallel, very little converging above. Hinder ocelli separated from the eyes by more than double the distance they are from each other. temples very little developed; the occiput transverse. Pronotum moderately large, the sides rounded. Median segment short, rounded; pilose and thickly covered with long pale hair. Tibiæ and tarsi stoutly, but not thickly, spined. Second cubital cellule about one-third shorter than the third; the 1st transverse cubital nervure is oblique and rounded; the 2nd is not oblique and is broadly, roundly bent towards the apex of the wing; the 1st recurrent nervure is received shortly beyond the middle; the 2nd near the apex of the basal third of the cellule; the accessory nervure in the hind wing is interstitial. The transverse basal nervure is roundly curved.

Salius robertianus, sp. nov.

Black; the head, the pronotum, mesonotum, tegulæ, scutellums, the scape of antennæ, the under side of the flagellum and the legs, except the coxæ and trochanters, fulvous; the wings dark yellowish-hyaline, the radial, the apical 3 cubital cellules, the apical two discoidal and the apical cellules, fuscous, with a distinct violaceous tinge. ♂.

Length 23 mm.

Hab. Kuching.

The joints of the flagellum are roundly curved below. Head and fore part of the thorax covered with a short golden pile. Apex of mandibles black. The front, vertex and occiput are infuscated; the front is distinctly furrowed down the centre. Post-scutellum prominent, broadly roundly convex, not raised above the level of the scutellum, and not raised in the centre. The median segment transversely, but not strongly striated, except on the apical slope. The 2nd and 3rd abscissæ of the radius are almost equal in length; the 1st discoidal cellule is almost hyaline, and has an elongated fuscous streak in the middle; the 3rd transverse cubital nervure has its upper half straight and oblique; the apical abscissa of the radius is straight and oblique; the basal nervure is roundly curved. The eyes are only slightly curved on the inner side and only slightly converge above and not at all below. The prothorax does not project outwardly above in the middle; the base of the mesonotum is broadly rounded, its sides not straight and oblique, as in *S. flavus*. The fore coxæ are only black behind; the hinder femora are blackish at the base.

Belongs to the group of *S. flavus*, except that the yellow colour in the wings is not clear.

Salius brookei, sp. nov.

Fulvous-yellow: the pleuræ dark fuscous, the apex of the median segment black; abdomen black; the ocelli in a black mark; the wings clear yellowish-hyaline; the stigma and nervures fulvous-yellow. ♀.

Length 14 mm.

Hab. Kuching. February.

Head in front longer than usual. Eyes distinctly curved on the inner side. Pronotum with a distinct wide furrow in the centre. The post-scutellum is more narrowed towards the centre than is the scutellum. The striation on the median segment is indistinct on the basal half. Tibiæ and tarsi distinctly, but not thickly, spined; the claws have a stout tooth at the base. The 2nd cubital cellule at the top is about two-thirds of the length of the first; below not much shorter than it; the 3rd transverse cubital nervure is roundly curved; the first recurrent nervure is received close to the base of the apical third of the cellule; the transverse basal nervure is straight and sharply oblique; the transverse median nervure is straight and sharply oblique and is separated by almost its own length from the transverse basal. The accessory nervure in the hind wing is not interstitial. The apex of the abdomen is dark fulvous and is thickly covered with pale fulvous hair.

Stizus Borneanus, sp. nov.

Black; the face below the antennæ, the clypeus, except for a large mark beneath, the labrum, the lower side of the scape a narrow line on the apex of the pronotum, interrupted in the centre and not extending to the outer edges, the tubercles, the outer edge of the tegulæ—their base entirely—a large oval mark on the sides of the scutellum, a small mark behind it, the greater part of the post scutellum, the sides of the median segment in the middle; a large mark, much broader than long, on the apex of the first abdominal segment, a line on the apex of the 2nd segment, dilated at the sides, a narrower one on the 3rd and 4th, a mark on the sides of the 5th and the sides of the 2nd and 3rd ventral segments—the marks narrowed on the inner side—yellow. Legs black, the apex of the 4 front femora, and the greater part of their tibiæ and tarsi anteriorly; and the basal half of the hinder tibiæ behind, yellow. Wings hyaline, the nervures and stigma black. ♀.

Length 11 mm.

Hab. Kuching.

The basal seven joints of the antennæ are brownish beneath. The black mark on the clypeus is narrowed towards the top; its centre above is roundly incised. The centre of the front is

shagreened; the sides bear silvery pubescence and the lower inner orbits are yellow; the vertex is impunctate and is, as is also the occiput, thickly covered with long fuscous hair. Thorax shining, impunctate, thickly covered with pale pubescence, which is longest on the median segment. Abdomen shining; the apices of the middle and apical segments covered with stiff black hair; the last smooth and bare in the middle. The posterior angles of the median segment are broadly rounded; the front is narrowed beneath; there is no violet iridescence on the thorax or abdomen.

Belongs to the group of *S. semperi*, Hand. *S. socius*, Hand. has been taken at Sarawak by Mr. Shelford.

Ampulex foveifrons, sp. nov.

Green, largely marked with blue, the lateral lobes of the mesonotum, and the basal areæ of the metanotum purple; the pleuræ brassy; the four posterior femora red; the antennæ short and thick; the 3rd joint distinctly longer than the 4th; the apex of the median segment bluntly rounded and without teeth on the apical lateral margins; the keels on the metanotum short, not extending much beyond the middle and three in number; the outer united at the apex with the central. Wings fuscous with a violaceous tinge; the apex of the radius broadly rounded, extending slightly beyond the top of the apical transverse cubital nervure. ♀.

Length 18 mm.

Hab. Kuching.

Antennæ stout, black, nearly as long as the thorax. Head large, nearly as wide as the mesothorax. Temples largely developed, not narrowed behind the eyes and rounded behind. Front closely and distinctly, but not strongly, punctured; the vertex more sparsely punctured; behind the ocelli are three large, elongated and two small foveæ in a row; the eyes are separated by about four times the length of the antennal scape. Clypeus broadly keel; its apex roundly projecting below. The raised part of the pronotum is broader than long, slightly narrowed and rounded at the base and about one fourth shorter than the mesonotum; the lower depressed part is coarsely longitudinally

punctured and deeply furrowed in the centre. Parapsidal furrows complete; deep and crenulated. The scutellar depression narrow, deep, crenulated. The central keel of the metanotum is straight; the lateral are curved and become united to the central, forming a large curved area, broader at the base than at the apex and marked with seven stout transverse keels; outside it is a large curved depression not bounded on the outer side by a keel and ending at the inner apical part in a round fovea; the middle part of the apical slope on the sides are irregularly punctured; the lower transversely striated. Pleuræ sparsely punctured; the upper part of the meta- bordered by a wide longitudinal furrow, which is irregularly striated. The anterior tibiæ and all the tarsi are brownish; the fore femora are black, green above; the middle tibiæ black, marked with green behind; the hinder bluish-green. Tarsal joints thickly spined; the joints narrow, longish; the claw-tooth broad at the base, becoming gradually narrowed towards the apex, which is sharp-pointed. The basal segment of the abdomen above is large, rounded, but not narrowed, at the base above, slightly broader than long and not very much shorter than the 2nd segment; the 3rd segment is not much shorter than the 2nd. The base of the 2nd segment projects straight downwards; the apex of the 1st segment in front of it projects roundly, but not much, downwards.

There are only two transverse cubital nervures; the upper three-fourths of the 2nd is straight and oblique, the lower is also straight, but without an oblique slope; it is united to the radius at a short distance from its apex.

This species is easily known by the broadly rounded, toothless apex of the median segment; by the short central keels on the metanotum and by there being no lateral ones, by the broad head and thorax, by the short, thick antennæ, by the straight, obliquely bent 2nd transverse cubital nervure and by the basal three segments of the abdomen being of almost equal length.

It is possible that this species may be *A. hospes*, Sm. (which Kohl thinks may be a var. of the Javanese *A. cognata*, Kohl,) but Smith's descriptions are not sufficient to enable me to decide this; as is unfortunately the case with too many of his Malay species.

Ampulex rufo-femorata, sp. nov

Green; largely marked with blue, the pleuræ with brassy tints; the antennæ black, the 3rd joint about one half longer than the 4th; the temples sharply obliquely narrowed; metanotum closely transversely striated; all its keels reach close to the apex of the segment; the central one bifurcates obliquely at the apex, the end keels uniting to the apex of the 3rd keel; all the trochanters and femora and the fore tibiæ are red; the tarsi black; the wings infuscated; the apical third darker cloured; the 1st transverse cubital nervures obliterated; the 3rd is received at a short distance from the apex of the radius; the 2nd segment is distinctly longer than all the following united; at its base below it has a rounded oblique slope. ♀.

Length 14 mm.

Hab. Mount Sibou.

Front and vertex sparsely punctured; the latter depressed broadly in the middle; the inner orbits are margined; the keels leading into the antennæ are long, stout and oblique; between them, below, are some curved furrows: the eyes at the top are separated by the length of the antennal scape and pedicle united. The raised part of the pronotum is shortly, but distinctly, longer than its breadth at the apex and is slightly narrowed at the base. The metanotum is not much shorter than the mesonotum; its teeth are stout and long; its apical slope is covered, except in the centre above, closely with curved striæ and is thickly covered with white pubescence. Mesopleura strongly punctured under the wings; the upper part of the meta obliquely striated, the striæ becoming closer and extending lower down on the apex. The abdomen, seen from the back, is as in *A. spectabilis*, cf. Kohl's fig. Ann. Hof. Mus. Wien. VIII, pl. XII, f. 35.

The ventral segments are as in his figure 36 pl. XII, but with the slope not quite so gradual. The hinder tibiæ are blue behind.

In Kohl's table this species would come in near *A. erythropus*.

Trirogma nigra, sp. nov.

Black, shining; the head and thorax thickly covered with long white hair, as are also the coxae, femora and ventral sur-

face of the adomen; wings hyaline, infuscated towards the apex, the nervures and stigma black. ♂.

Length 12 to 13 mm.

Hab. Santubong.

Antennæ as long as the body, black; the apical joints slightly curved. Vertex strongly, but not closely, punctured, more sparsely behind the ocelli; the front closely reticulated; both are sparsely covered with long white hair. Face and clypeus thickly covered with long depressed white hair, which hides the texture. Prothorax smooth and shining; the pleuræ with some striæ in the middle; the pronotum at the apex cleft, the sides rising into large, oblique pyramidal, oblique tubercles. Base of the mesonotum is coarsely rugosely punctured, and in the middle irregularly striated; its middle at the apex is smooth, shining and roundly convex. Scutellum not much raised, smooth and shining. Metanotum shining; in the centre is an oblong area, with straight sides and apex; from its apical angles issues a short curved keel, and from the sides, near the middle, two curved longer ones; outside this are two oblique keels; united at the apex by a shorter one, which is roundly curved inwardly; from these keels the segment slopes obliquely to the tubercles, to which they are united by some keels; there being also some keels behind them. From the tubercles a keel runs round the sides and apex. Abdomen smooth and shining; the petiole, sides and ventral surface thickly covered with long white hair. The first transverse cubital nervure is obliquely bent at the top; the second is roundly curved.

This species is easily separated from the known species by its black body. The metathoracic spines, too, are more prominent than usual.

Cerceris malayana, sp. nov.

Black; the face, clypeus, the scape, 2 broad marks on the pronotum, tegulæ, post-scutellum, two large marks, irregularly oval in shape, on the apex of the median segment, a large broad mark on the base of the 2nd abdominal segment; a broad band—widest on the sides—on the apex of the 3rd segment; and a narrow band on the apices of the 5th and 6th, yellow. The four front legs yellow, with a broad band on the femora behind; the

hinder femora, the base of the hinder tibiæ narrowly, their apex more broadly and the hinder tarsi black. The area on the metanotum smooth, with a deep crenulated furrow in the centre. Wings hyaline, the radial cellule and the apex of the 4th cubital cellule smoky; the stigma dark fuscous. ♂.

Length 8 mm.

Hab. Kuching.

Flagellum of antenn below and the apical joint also above brownish-red; the pedicle entirely black. Front and vertex closely and strongly punctured; the face and clypeus less closely and covered with white pubescence; the yellow on the face is obliquely, sharply narrowed above; laterally it extends along the eyes to the base of the antennæ. Thorax strongly and closely punctured, except the metanotal area which is smooth and shining except at the apex; its central furrow does not commence at the base which is obliquely depressed. Abdomen strongly punctured; the pygidium is only slightly narrowed at the base and apex; its basal half strongly punctured, its apex transverse; the apex of the hypopygium is roundly incised.

* *Pison Sarawakensis*, sp. nov.

Black; densely covered with silvery pubescence; the apex of the median segment with a rather steep slope, its base closely and finely obliquely striated, the striæ springing from the central furrow, which is shallow, the wings hyaline, the nervures blackish, the tegulæ and calcaria testaceous.

Antennæ black, thickly covered with silvery pubescence. Front and vertex alutaceous; the rest of the head thickly covered with silvery pubescence. Mandibles for the greater part rufous; the palpi brownish. The thorax is thickly covered with silvery pubescence, closely, minutely punctured: on the centre of the mesonotum are two shining, longitudinal lines. The furrow on the metanotum is wide and shallow; in its centre is a thin irregular keel: the base of the segment is obscurely obliquely striated; the apical furrow is wide. Abdominal segments banded with silvery pubescence; closely, microscopically

* *Pison* is treated by Bingham as a neuter word. It is, however, a masculine word—the name in fact of some Biblical or Classical personage, I forget which.

punctured. The wings are slightly infuscated at the apex; the first recurrent nervure is received in the 1st cubital cellule, distinctly in front of the transverse cubital nervure; the 2nd in the centre of the 2nd; the pedicle is distinctly longer than the branches of the transverse cubital nervures.

Trypoxylon annulipes, sp. nov.

Black; the head and thorax thickly covered with golden pubescence, the anterior tarsi and the base of the tibiæ testaceous; the front stoutly keeled above the antennæ: the 2nd and 3rd segment more or less rufous; the wings hyaline. ♀.

Length 17 mm.

Hab. Matang, 2500 feet.

Antennæ black; the scape on the under side covered with white pubescence The head, except on the front, is thickly covered with golden pubescence; the front is alutaceous; its upper part is obscurely furrowed in the centre; its lower stoutly keeled. Clypeus keeled in the middle. Mandibles piceous at the base. Palpi white. Thorax thickly covered with long golden pubescence; smooth and shining. The furrow on the base of the metanotum shallow, indistinct and becoming wider towards the apex; on the apical slope it is deeper, wider and with obliquely sloped sides. Legs covered with a pale pile. Abdominal petiole as long as all the other segments united.

There are no lateral furrows on the base of the metanotum.

VESPIDÆ.

Montezumia flavobalteata, sp. nov.

Black; the clypeus, except for a broad line in the middle, not reaching to the apex and obiliquely narrowed below, the eye orbits—the inner entirely and the outer from near the top—the mandibles, except on the inner side, the prothorax, except on the basal slope, and an oblique mark—narrowest below—on the propleuræ, two narrow lines on the mesonotum, the basal half of the scutellum, except narrowly in the centre, the postscutellum, the median segment except for a curved mark at the base, a line down the centre and an irregular mark on the centre of the metapleuræ above, yellow. Wings hyaline, the apex

slightly infuscated, the stigma fulvous. Legs yellow; the apices of the four front femora above, the hinder almost entirely, the base and lower side of the hinder tibiæ and the basal joints of the hinder tarsi, black. Abdominal segments narrowly lined with yellow; two longish lines near the base of the petiole and two long, curved, somewhat pyriform, (the narrow end at the base) marks on the base of the 2nd segment and the whole of the apical segment, yellow. ♀.

Length 14 mm.

Hab. Penrissen.

Front and vertex strongly and closely punctured ; the lower part of front reticulated. Clypeus broadly but not deeply incised. Mandibles on the top and at the apex black. The clypeus is as long as its greatest width. Thorax strongly and closely punctured; the longitudinal and the vertical furrows on the base of the mesopleuræ are deep; the furrow on the median segment is deep and is keeled in the centre. The petiole is about one fourth longer than the 2nd segment; it becomes gradually wider towards the apex. The 2nd cubital cellule is much narrowed at the top, the nervures almost touching there; the 2nd recurrent nervure is almost interstitial; if anything it is received in the 3rd cubital cellule. Petiole distinctly punctured ; the other segments smooth.

The wings are longer than usual and extend beyond the apex of the abdomen the 2nd segment of the abdomen is broad at the base and is not contracted there. Maxillary palpi apparently four jointed; the last joint minute ; the joints bearing stiff long hairs.

This is not a tyyical *Montezumia*, but it fits better into that genus than into any other. It has also some affinity with *Pterochilus fulvipennis*, Cam. (which is not a typical *Pterochilus*), having the palpal characters of that species (cf. Manchr. Memoirs, 1898), the joints being sparsely covered with stiff hairs and the last minute. Characteristic is the greatly narrowed at the top 2nd cubital cellule and the interstitial 2nd recurrent nervure.

Zethus rufofemoratus, sp nov.

Black ; the four hinder coxæ, trochanters and femora red, the clypeus, except for a black mark in its centre, which is pro-

duced slightly in the middle above and largely and roundly in the middle below, a small square mark in the middle above the antennæ, a line on the under side of the scape, a line on the apex of the pronotum, narrowed in the centre, two marks on the centre of the scutellum, two of similar size on the post-scutellum, a small oval mark on the sides of the median segment, two large oblique ones on its sides, which become gradually wide towards the apex and a large longish mark, broader on the upper than on the lower half, on the pleuræ below the tegulæ and a narrow line, slightly interrupted in the middle, on the apices of the 1st and 2nd segments, yellow. Wings almost hyaline, with a distinct violaceous tinge; its apex and the apex of the costal cellule smoky-violaceous, the nervures and stigma black.

Length 14 to 15 mm.

Hab. Kuching.

Front and vertex strongly and closely punctured, except on the former on the sides below. The clypeus is as strongly but not so closely, punctured; its apex, sides and a mushroom-like mark in the centre are black; it is wider than long; its apex is about half the width of the top and is slightly, broadly incised, not transverse. Pronotum smooth and shining. Mesonotum, except on the sides at the apex, strongly and closely punctured. Scutellum flat, somewhat strongly, but not closely, punctured; on the basal depression are five stout keels. Metanotum with a large, triangular punctured band in the centre at the base; the central depression becomes gradually wider from the upper third, which is a little narrowed at the base and is bounded by a stout transverse keel at the apex. Pro-and mesopleuræ coarsely rugosely punctured. Metapleuræ coarsely shagreened and sparsely punctured. The basal three segments of the abdomen are closely punctured. The fore femora are broadly yellow beneath and there is a line, narrowed above, on the upper half of the fore tibiæ. The 2nd cubital cellule is triangular, the nervures almost touching above; the 2nd transverse cubital nervure is interstitial. When fresh the body was probably thickly covered with pale pubescence.

Comes nearest *Z. 4—dentatus*, Cam., "Entomologist," December, 1902, 314. There is a smooth longitudinal line on

the centre of the vertex behind. There are two longish subapical closely united, not very distinct, subapical teeth on the mandibles; there is a distinct raised transverse keel on the base of the petiole; near it on the sides is a tubercle.

Odynerus rugifrons, sp. nov.

Black; the clypeus, mandibles except at the apex, a line on the front broadly dilated below and not reaching to the ocelli, the inner eye orbits, broadly below, narrowly above the sinus, the outer orbits, the prothorax broadly in front, two narrow lines on the mesonotum, two large marks on the scutellum, postscutellum, the greater part of the mesopleuræ, the median segment, except for a black band down the centre, the apices of the abdominal segments narrowly and two large, somewhat pyriform, marks—the narrow end at the base—near the base of the 2nd segment, yellow. Legs similarly coloured; a line on the apical half of the middle femora, a shorter one on the base of the middle tibiæ, the hinder femora and tibiæ broadly above and the base of the hinder tarsi black. Wings hyaline, the apical three-fourths of the radial cellule and the cubital cellules in front below it and the apex of both wings more faintly all round, smoky. ♀.

Length 12 to 13 mm.

Hab. Kuching.

Front and vertex closely and strongly punctured, the front much more strongly than the vertex, which is almost smooth in the middle; the punctures on the front run into reticulations above. Clypeus sparsely punctured; it has an oblique slope from the middle towards the base and apex; the apex has a wide, round incision; the apical angles stout. Thorax above coarsely, strongly rugosely punctured. The postscutellum is separated from the post-scutellum by a moderately, almost smooth, furrow and is not clearly separated from the metanotum, which has a rather steep, oblique slope. The 2nd cubital cellule is narrowed above; the 1st transverse cubital nervure is oblique and roundly curved downwards; the 2nd is broadly roundly curved outwardly; the 2nd recurrent nervure is almost interstitial. Abdomen shining, the 2nd segment large, longer than its width at the apex and more than twice its width at the base.

The head is large and is well developed behind the eyes; the temples are broadly rounded; the base of the thorax is rounded, not transverse; the sides of the median segment are rounded, without any angles and the stigma is fulvous.

This species has the colouration of *O. hyades*; that species may be known from it by the apex of the clypeus being transverse, by the temples not being rounded, by the base of the thorax being transverse and by the sides of the median segment projecting and its apex transverse.

Odynerus hyades, Cam.

This species (described Journ. Str. Br. R. A. Soc., 1902 112), is variable as regards the amount of yellow on the body and of the black on the legs. The pronotum is transverse, not rounded.

Odynerus 7—fasciatus, Sm.

This species has been taken at Matang, 3,600 feet and at Sabras. It is easily known by the body being thickly covered with black erect hair, and by all the abdominal segments being banded with yellow. It is probably a variable species as regards the quantity of yellow on the head and thorax and also as regards the amount of black on the legs. The ♂ has the clypeus entirely yellow; not broadly marked with black in the centre as in the ♀; it is also slightly roundly incised at the apex, not transverse as in the ♀. Characteristic is the fact the first two transverse cubital nervures are almost united at the top.

The species has a close resemblance in from and colouration to a *Vespa*. It is probably of wide range in Malaya and has been recorded from Sumatra by Gribodi who describes it in full in Bull. Soc. Ent. Italiana, XXIII.

Odynerus carinicollis, sp. nov.

Black; the prothorax red; the clypeus, except for a black transverse mark in the middle, the eye incision, a mark, roundly dilated at the apex on the lower part of the front, a line on the upper half of the eye orbits, the edge of the median segment and

of all the abdominal segments, yellow. Wings hyaline, the greater part of the radial cellule smoky, the cloud projecting into the upper part of the cubital cellules. ♂.

Length 7 mm.

Hab. Kuching.

Scape of antennæ yellow beneath; the flagellum brownish, black above. Front and vertex closely and strongly punctured, on the front running into reticulations; the front keeled between the middle. Clypeus sparsely punctured; its greatest width slightly greater than the length; the apex depressed and slightly, roundly incised. Base of thorax transverse, sharply keeled; the scutellum is more widely punctured than the mesonotum. The apex of the median segment is transverse, keeled and with a slight incision in the centre; the yellow line is dilated on either side of the incision. The lower half of the base of the meso- and the greater part of the base of the metapleuræ smooth, impunctate. The basal three abdominal segments are obscurely punctured; the base of the first is indistinctly bordered. The hinder tibiæ are for the greater part black, the four anterior greater part yellow: all the tarsi are for the greater part yellow.

Odynerus Robertianus, sp. nov.

Black; the clypeus except for a broad curved black mark above the narrowed part, a minute spot behind the eyes and a line on the apex of the 1st and 2nd abdominal segments, yellow; the legs black, with the four anterior tibiæ yellow in front; the wings almost hyaline. the apical two-thirds of the radial cellule and the anterior half of the apical cubital cellule smoky; the petiole keeled at the base. ♀.

Length 9 mm.

Hab. Kuching.

Head above the antennæ coarsely rugosely punctured and covered with a pale pubescence; the outer orbits sharply keeled; the clypeus sparsely punctured, its greatest width as great as its length; its apex longitudinally depressed in the centre; the apex black, widely, but not deeply, incised; the sides not projecting into teeth. Thorax rugosely punctured; the post-scutellum and metanotum more coarsely than the rest. the punctures

almost forming reticulations; the apex of the median segment slightly projects on the top; the sides have a straight, slightly oblique slope from the top to the bottom. The 1st and 2nd abdominal segments are closely and strongly punctured; the 1st is cup-shaped, broader than long; its base is stoutly, irregularly keeled; the 2nd is longer than its width in the middle and is narrowed at the apex.

The clypeus is not bordered laterally by a keel as in *O. Sicheli*; the antennal keel is not so stout nor so well defined as it is in that species, which has not the apex of the fore wings clouded.

Rhynchium Matangense, sp. nov.

Black; the apex of the thorax and the basal segment of the abdomen dark rufous; the under side of the scape and a large mark, roundly narrowed above, on the clypeus, yellow; the ventral surface and the apex of the abdomen densely covered with silvery pubescence; the wings hyaline, radial and the apical cubital cellules fuscous with a distinct violaceous tinge; the greater part of the hinder femora and a line on the middle, rufous. ♂.

Length 13 mm.

Hab. Matang.

Flagellum of the antennæ brownish beneath; the apical spine stout, slightly roundly curved. Front and vertex closely rugosely punctured; the eye incision more widely and strongly punctured than the rest; the clypeus is less strongly and closely punctured; its apex is slightly roundly incised, broad. There is a white mark on the base of the mandibles. Thorax coarsely rugosely punctured; the scutellums more coarsely than the mesonotum, and the median segment more coarsely—running into reticulations—than the mesonotum. The apex of the median segment has an almost vertical slope; its centre furrowed; the sides broadly rounded and without spines forming two broad lobes. Mesonotum covered with short fuscous pubescence. First segment of abdomen cup-shaped, with a short, but distinct, neck; the 2nd segment is barrel-shaped; obscurely rugose; the 3rd and 4th segments are more strongly and distinctly punctured.

Ischnogaster fuscipes, sp. nov.

Black; the clypeus except for a somewhat elongated pyriform mark on its upper half in the centre, yellow; the legs dark fucous; the wings hyaline, with a violaceous tinge, highly iridescent and infuscated at the apex; the 3rd abscissa of the radius is somewhat more than one-half the length of the 2nd and about one-third longer than the 4th; the 3rd transverse cubital nervure has the upper half almost straight, the lower has an oblique slope towards the recurrent nervure.

Length 25 mm.

Hab. Klackang.

Antennæ black, only slightly infuscated at the apex beneath. Clypeus covered with a silvery pubescence; the black mark is rounded and shortly stalked at the base; at the apex it is joined to the eyes by a transverse line; its upper half is closely, minutely and distinctly punctured; the face is more strongly and less closely punctured and projects slightly in the centre. Vertex sparsely punctured. There is a short yellow line, dilated in the middle on either side of the apex of the pronotum. Mesonotum closely and distinctly punctured; the punctures at the base form almost reticulations and there is there a distinct central and less distinct lateral keel on either side of it; it is thickly covered with longish fuscous pubescence. Scutellum less strongly and more sparsely punctured than the mesonotum and thickly covered with long brownish hair, this being also the case with the post-scutellum. The furrow on the centre of the mesopleuræ is curved; rounded on the basal half, straight and slightly oblique on the apical.

The clypeus is not so distinctly separated from the face as usual; the wing nervures are black; the stigma is fuscous; the clypeus is longer compared to its breadth than usual. It is readily known from the other Bornean species by the absence of yellow markings on the meso- and metathorax.

Icaria Malayana, sp. nov.

Black; the scape beneath, the sides of the clypeus broadly—the black central mark pyriform with a short broad pedicle at the base—the upper part of the pronotum narrowly, the upper

part of the sides broadly, the tegulæ, two large marks on the scutellum, transverse at the base, rounded at the apex and almost united, the post-scutellum, the metanotum, except in the centre; the apex of the 1st abdominal segment broadly, of the 2nd more narrowly, and of the 3rd still more narrowly, yellow. Legs black; the fore coxæ beneath broadly, a narrow line on the outer side of the middle and a broader one on the hinder pale yellow; the tibiæ and tarsi rufo- testaceous. Wings clear hyaline; the anterior half of the radial cellule smoky; the stigma and nervures dark fuscous. ♀

Length 7 mm.

Head and thorax covered with a pale pile. Front and vertex distinctly, but not very closely punctured; the punctures round and shallow; the clypeus is much more shining, more sparsely punctured, its greatest width greater than its length; its sides rounded above, its apex ending in a sharp tooth; its centre above is lightly roundly curved downwards. Mandibles shining, there is a yellow mark, longer than broad near the base; their apices piceous. Thorax closely and uniformly punctured except on the apex of the meso- and the base and lower part of the metapleuræ which are only sparsely punctured; the upper part of the latter bears some stout, curved striæ. Abdominal petiole short and stout; the 2nd segment as long as its width at the apex. Flagellum of antennæ black.

The head is larger than usual; the temples being broader and less obliquely narrowed than in most of the oriental species; its front, too, projects more broadly and roundly. The tegulæ are pallid yellow, darker on the inner side; there are two small yellow marks on the mesopleuræ.

A distinct species. Characteristic are the deep black body and large head, with well developed temples and almost transverse occiput.

Icaria maculifrons, sp. nov.

Head and thorax black, the petiole brownish, a longish line —narrowed below, transverse above—between and above the antennæ, a line on the inner orbits, commencing on the inner side of the lower part of the incision and becoming broader and

rounded, the side and apex of the clypeus—the black central mark, becoming gradually roundly, narrowed towards the apex—the prothorax, except the lower half of the propleuræ, tegulæ, scutellum, post-scutellum, a large oblique mark on the mesopleuræ two elongated pyriform marks on the metanotum, the apical fourth of the 2nd segment and the greater part of the others, yellowish. The legs black; the apices of the femora narrowly and the tibiæ and tarsi testaceous; the radial cellule lightly smoky, except at the base; antennærufo-testaceous. ♀.

Length 9 mm.

Hab. Santubong.

Front and vertex closely, but not deeply punctured, except over the antennæ. The clypeus is much less distinctly punctured; it is slightly longer than its greatest breadth; rounded downwards; the apical tooth is indistinct. Thorax closely punctured, the punctures, in places, running into reticulations; the apex of the post scutellum and the metanotum impunctate; the metanotum is widely and deeply furrowed in the centre; the sides of the furrow are oblique; the side sparsely, finely, obscurely striated. The abdominal petiole is elongated as in *I. variegata;* only about the basal third is narrowed; the 2nd segment is distinctly longer than its width at the base; it is brownish at the base. The 2nd cubital cellule is narrowed at the top, being there about one-fourth of the length of the 3rd.

Comes near to *I. marginata and I. variegata.* The Bornean species of *Icaria* seem to have the clypeus broadly black in the middle, e. g. *Malayana* and *latebalteata*, Cam.

Mr. Shelford has taken at Kuching *I. ornaticeps*, Cam., hitherto only known from the Khasia Hills in Assam.

ANTHOPHILA.

Megachile Cæcina, sp. nov.

Black; the front, face and clypeus thickly covered with long fulvous hair, as are also the mesonotum, scutellum, the sides of the metanotum, the upper part of the mesopleuræ and the basal segment of the abdomen; the hair on the rest of the body is pale; the wings hyaline, with a slight violaceous line, the stigma dark testaceous, the nervures black. ♀.

Length 10 mm.

Hab. Trusan.

The vertex is strongly and closely punctured, the punctures all clearly defined; the sculpture on the front and clypeus is hid by the dense hair. Base of mandibles punctured; the apical tooth is long and sharp-pointed; the two subapical are of almost equal size. Mesonotum and scutellum closely punctured. The area on the metanotum is bare, opaque and is bordered by broad curved, shallow furrows. The basal segments of the abdomen are obscurely punctured; the penultimate segment is strongly and closely punctured and is covered with longish black hair; the last segment is much more closely and uniformly, but not so strongly, punctured; its base has an almost vertical slope; the apex projects and has a wide shallow incision in the centre above which is a spot of golden pubescence. The hair on the legs is long and pale, on the base of the hinder tarsi below, golden.

Megachile Borneana, sp. nov.

Black, the pubescence on the front, upper part of the thorax and on the apices of the dorsal segments of the abdomen, fulvous; on the clypeus and pleuræ pale; the apex of the abdomen with a broad, rounded incision; the wings hyaline, the radial and cubital cellules infuscated, the stigma fuscous, the nervures darker. ♀.

Length 10 mm.

Hab. Kuching,

Front and vertex rather strongly and closely punctured; the clypeus is quite as strongly, but not so regularly punctured and has an irregular, smooth line in the centre of the upper two-thirds. Mandibles rugosely punctured, smooth at the apex; the apical tooth is long; the 2nd and 3rd short, bluntly pointed; the 2nd is much shorter than the 3rd. Mesothorax, with the scutellum, closely and uniformly punctured; the median segment is not so strongly or closely punctured; the basal area is strongly aciculated and finely striated. Abdominal segments, including the transverse depressions, closely punctured; the last is more strongly punctured than the others; the basal segment is covered entirely with fulvous pubescence; the others

with narrow bands only. The hair on the legs is pale, on the under side of the base of the tarsi fulvous.

Megachile esora, sp. nov.

Black; the head, pro- and sides of mesonotum thickly covered with rufo-fulvous pubescence, the median segment laterally thickly covered with long white hair; the abdominal segments with narrow bands of white pubescence; the wings almost hyaline to the transverse basal nervure, beyond it fuscous violaceous; the scape white; the apex of clypeus bidentate. ♀

Length 11 mm.

Hab. Kuching.

Head rugosely, closely punctured; on the temples the punctures are larger and more distinctly punctured. The apex of the clypeus in the middle ends in two short, broad shining teeth; the part between them is roundly curved; the front and vertex are thickly covered with long rufous hair; the clypeus with pale fulvous pubescence, which is only visible when looked at laterally or from above. Mandibles strongly punctured on the apical half, the punctures are large and clearly separated; the base is rugosely punctured; there are only two teeth; the apical is large, the 2nd shorter and broader, more broadly rounded at the apex; the inner part forms two shallow curves. Pro- and mesothorax closely and strongly punctured and covered with rufous pubescence; the pleuræ more sparsely with longer, pale hair. The basal area on the median segment is smooth; the furrow at the base is crenulated, the rest closely punctured and covered with long white hair. The abdominal segments are fringed with white hair; the ventral scopa is white; the basal three segments are closely punctured all over; the 4th is smooth at the base and more narrowly at the apex, the intermediate space irregularly punctured; the 5th is irregularly punctured near the apex which is sparsely covered with long black hair; the 6th is thickly covered with short, stiff black pubescence. The apical part of the fore wings, from the transverse basal and the transverse median nervure (the cloud following their curves), dark fuscous-violaceous; the part behind clear hyaline; the hind wings are hyaline to shortly beyond the middle, the apex fuscous, with a violaceous tint.

Is not unlike *M. faceta*, Bing., but that species has the apex of the clypeus transverse, not incised in the middle of the apex.

Megachile gadara, sp. nov.

Black; the hair on the head, thorax and on the abdominal segments, white; the mesonotum closely covered with small, round punctures; the white bands on the abdomen are narrow; the apical segment has a rounded, shallow incision in the middle; the wings hyaline, slightly infuscated at the apex; the stigma and nervures dark fuscous. ♂.

Length 9 to 10 mm.

Hab. Kuching.

Head in front thickly covered with long, pale fulvous hair; the clypeus closely and strongly punctured, as are also the front and vertex; the outer orbits thickly covered with long white hair. Mandibles at the base closely, but not very strongly, rugose; the top with irregular, scattered punctures; the teeth smooth and shining; the apical tooth is long, narrowed and rounded at the apex; the 2nd is shorter and bluntly pointed; the 3rd triangular, broad at the base, becoming gradually narrowed towards the apex and it is distinctly longer than the 2nd. Thorax strongly closely punctured; the median segment finely rugose; the thorax is thickly covered with long white hair. Legs covered with long white hair; on the under side of the tarsi the pubescence is golden; on the hinder part of the posterior tibiæ is a thick line of depressed white pubescence. There is a shallow, curved incision on the base of the fore tibiæ, the part at its base projecting into a small tooth; the incision at the base of the tarsi is larger and deeper. Abdomen closely, but not strongly, punctured; the basal transverse furrows are smooth, the apical closely punctured the last segment has a rounded shallow incision on the apex; above it is a large deep fovea, which is rounded and narrowed above. The penultimate segment is narrowed at the sides and has a broad, rounded incision at the base in the middle.

Nomia violaceipennis, sp. nov.

Black, shining; the thorax closely and strongly punctured, except on the centre of the median segment; the hair white; the

area on the metanotum closely longitudinally striated; the wings dark violaceous, darker at the apex; the tegulæ rufous. ♀.

Length 12 mm.

Hab. Kuching.

Clypeus and face strongly, but not closely, punctured, the clypeus slightly depressed in the centre and with a thin irregular keel down the centre; the face convex in the centre; the front and vertex are strongly and closely punctured, except at the ocelli; they are, as are also the outer orbits, thickly covered with long soft hair. Mesonotum closely, strongly and uniformly punctured; the scutellum is more strongly, but not so closely, punctured as is also the metanotum, except for a triangular smooth space near the top and a line down the centre; the furrow on its top is long, narrow and is closely, stoutly longitudinally striated. Propleuræ smooth, above thickly covered with white hair; the meso- closely and uniformly punctured and covered sparsely with short white hair; the meta- thickly covered with long white hair. Abdomen shining above, the segments, except at the apex, closely, minutely punctured. Ventral segments fringed with white hair. Legs thickly covered with long, soft white hair. The wings are paler in the middle and darker at the apex than at the base.

The basal slope of the 1st abdominal segment is thickly covered with long white hair; the apices of the segments are glabrous; the apex of the clypeus is transverse; the median segment has a vertical slope; the scutellum and post-scutellum are sparsely covered with long black hair; the median segment has a vertical slope; the hinder tibiæ and tarsi are not densely pubescent on the inner side and have a castaneous hue; the under side of the flagellum is fuscous.

Comes near to *N. fuscipennis*, Sm.

Nomia bicarmata, sp. nov.

Black; covered with pale pubescence; the head and thorax closely punctured; the apical half of the median segment deeply furrowed; the sides from shortly above the middle keeled; the apices of the abdominal segments covered with depressed white pubescence; the wings hyaline; the stigma fuscous. ♀.

Length 7 to 8 mm.

Hab. Kuching.

The scape of the antennæ appears thinner and longer than usual; the flagellum is brownish beneath. Head closely and distinctly punctured, the front more strongly than the rest; the clypeus is broadly, roundly raised in the centre, where it is bare, smooth and shining; its top and the face above it are bordered by smooth lines, mandibles rufous, black at the base; the hair is long and pale; the occiput is sharply margined. Mesonotum closely and strongly punctured, the hair on it is thicker and whiter round the edges; the scutellum has the hair longer and thicker; the post-scutellum is thickly covered with white pubescence, the furrow at the base of the scutellum is longitudinally striated. Median segment with an oblique slope; the centre on the apical half is furrowed; the sides on the apical half are distinctly keeled. The flocus on the hinder tibiæ is long and pale; on the tarsi it has a rufous tint. The basal four segments have a band of depressed white pubescence; the hair on the ventral surface is long and white. Characteristic of this species is the smooth, roundly convex, shining clypeus and the two keels on the sides of the median segment.

Nomia iridescens, Sm.

This species has been taken at Kuching. It has been recorded from India and Sumatra.

Ctenonomia, gen. nov.

Fore wings with three cubital cellules, of nearly equal size. Head narrow, the temples short, ocelli in a curve. Abdomen short, ovate; the ♀ with a dense ventral scopa; its apical segment with a rima. Pronotum keeled; the keel widest on the sides. Metonotum large, transverse, flat, stoutly keeled on the sides and apex and longitudinally striated; its apex with a perpendicular slope. Legs densely covered with long hair; the spurs toothed; the claws cleft unequally. The body is short and broad. The wings are large: their stigma thick; the basal nervure is roundly curved; the transverse median nervure is received shortly behind it; the 1st recurrent nervure is received

near the apex; the 2nd not quite so close to the apex. The eyes are large, reach close to the base of the mandibles and converge distinctly on the top. The face is roundly convex; the clypeus is nearly as long as it, is broader than long and transverse at the apex. The tegulæ are moderately large. The scape of the antennæ is long and slender; the flagellum thick.

The affinities of this genus appear to be with *Nomia* from which it may be known by the pectinated spurs, by the large, keeled median segment, by the ventral surface being thickly covered with long hair, by the distinct anal rima and by the stoutly keeled collar. Having only a single specimen I have not been able to make an examination of the trophi, but the maxillary palpi appear to be 6-jointed.

Ctenonomia carinata, sp. nov.

Black; the head and thorax sparsely covered with short, the legs and ventral surface thickly with long white hair, on the under side of the tarsi it has a fulvous tint; the wings hyaline the nervures and stigma black. ♀.

Length 6 to 7 mm.

Hab. Matang.

Head opaque, the vertex more shining and smoother; the front has a narrow keel down the centre; the clypeus is irregularly punctured on the apex. Mesonotum opaque, closely, minutely punctured; in the centre are three impressed longitudinal lines. The striæ on the median segment are stout, clearly separated, irregular, and mostly reaching to the apex of the basal part; the bounding keels project as teeth at the apical angles; it is bare, shining and impunctate as is also the apical slope. Abdomen shining: the apices of the segments brownish and bare; their base covered with close white pubescence; the anal rima is brownish.

Xylocopa caerulea, Fab.

Mr. Shelford has taken the rare ♂ of this species. The head is narrower than in the ♀; and instead of the head, thorax and base of abdomen being covered with blue pubescence, they are covered with light soot-coloured hair; the hair on the abdo-

men is darker soot coloured; and the antennæ and legs are piceous. The wings are lighter coloured, wanting the deep violaceous tint found in the ♀.

Smith (Trans. Ent. Soc. 1874, 269) appears to have had a ♂ with blue hair on the head and thorax. Mr. Shelford's example is only 17 mm. in length. The species is common all over the Oriental Region, but no author, except Smith, *l.* c., has described the ♂.

Xylocopa (Koptortsoma) Sarawakensis, sp. nov.

Black; the head, thorax and basal segment of abdomen thickly covered with olive-green hair; the 2nd abdominal segment with darker olive-green pubescence; all the tibiæ and the four front tarsi fringed with long pale olive-green hair; the hair on the hinder tarsi black mixed with dark olive hairs on the under side; on the base of the 3rd and following dorsal segments of the abdomen are two patches of whitish depressed hair which are rounded at the apex; the part underneath them is brown and shining; the apex of the last segment is fringed with whitish hair. The hair on the ventral segments is black; paler on the edges and on the sides of the basal segments. Wings dark fuscous, with a distinct violaceous tinge ♂.

Length 22 mm.

Hab. Matang.

Flagellum of antennæ brownish beneath; the base of the scape fuscous. Clypeus closely punctured, a black hair issuing from each tubercle; its centre is not keeled; its apex is smooth, shining and raised. Mandibles shining, shagreened in the middle to near the apex: they have only one tooth which is long and roundly curved on the inner side. The 3rd transverse cubital nervure is roundly curved outwardly; the 2nd recurrent nervure is received at fully the length of the 2nd transverse cubital nervure from it. The fore femora and tibiæ are slender; the upper spur is long and curved and below has a broad white, rounded at the apex, membranous projection. The base of the hinder femora projects oblique downwards into a stout triangular tooth; in front of this is a shorter, more slender tooth which is roundly curved at the apex The fore trochanters project triangularly behind.

Comes near to *X. malayana*, Cam. The white patches on the back of the abdomen may be hidden under the apex of the preceeding segments.

On a Collection of Coins from Malacca.

By R. Hanitsch, Ph. D.

(*With two plates.*)

About three years ago, during some excavations near the mouth of the Malacca river, a considerable number of coins was found scattered in the mud. These were collected together and handed over to the Hon'ble W. Egerton, Resident-Councillor of Malacca at the time, and presented by him to the Raffles Museum. The collection has proved to be of the greatest interest. It contains coins of both Asiatic and European origin, the European coins, Portuguese, Dutch and English, embracing practically the whole history of the various European occupations of Malacca, covering thus a period of about four hundred years. The most interesting of the coins are those of Portuguese origin, all of tin. They are probably quite unique: the British Museum does not possess any, and numerous enquiries I have made about them in various places, including Lisbon, have remained without result. With regard to their discovery Mr. Egerton writes:—

"The Malacca Coins were found in digging a channel from the mouth of the river seawards. Outside the mouth there is a deep pool, and beyond that a bank submerged at high water, extending some half mile or more seawards. It was in this bank the coins were found scattered here and there, not in large pockets. The bank contained quantities of household detritus, broken crockery and old ironware, bricks, earthenware, etc. I think it is quite possible buildings on piles, like those now seen on the foreshore, may have been built on this bank, or possibly all this rubbish was thrown out of ships at anchor, or washed down out of the river. Most of the coins were found in the first hundred yards outside the big pool referred to above. There must be many still there."

I. THE ASIATIC COINS.

That tin coins, struck by the inhabitants of the place, existed in Malacca before the arrival there of the Portuguese is

proved by certain accounts in Albuquerque's Commentaries (*2*)*, but the fact seems to have almost escaped numismatologists, for Millies (*12*), p. 140, speaking of the currency of the Malay Peninsula says: "Même l'état malai si célèbre de Malaka, qui était parvenu à son apogée au commencement du XVI^e^ siècle, lorsqu'il tomba sous la force matérielle majeure et l'héroisme des Portugais, ne nous a laissé aucun monument numismatique connu, et nous ne savons même pas, si ce état malai possédait déjà une monnaie propre." In this Millies is certainly wrong, for in Albuquerque's Commentaries (*2*), Vol. III, p. 77, we find a mention of native coin which tells how King Xaquendarxa (i. e. Iskander Shah), ruler of Malacca, went to see the king of China, wishing to become his vassal and took with him many presents, receiving in return, amongst other privileges, permission to coin small "money of pewter, which money he ordered to be made as soon as he reached Malacca; and to it he gave the name of Caixes which are like our (i. e. Portuguese) ceitils, and a hundred go to the calaim, and each calaim was worth, to an appointed law, eleven reis and four ceitils. Silver and Gold was not made into money, but only used by way of merchandise." The fact that Malacca possessed native pewter coins on the arrival of the Portuguese becomes indisputable when we read that Albuquerque after the occupation of Malacca minted coins under the name of his king, D. Manuel, "in order to withdraw and suppress the coinage of the Moors and cast their root and their name out of the land," and that when the new coinage was ready, he gave orders "that all the Moors who held coin of the King of Malacca should convey it thither" (i. e. to the mint) "without delay under pain of death; and so great a quantity of money was thus carried there out of fear of the penalty which had been appointed to them, that the officers could not dispatch their business fast enough." (Vol. III, p. 138).

I am sorry I cannot furnish absolute proof that the collection really contains coins of that early period. There are about 150 tin coins with Arabic inscriptions, but those few which are clear enough to be deciphered are of a much later date. It may be that the most worn and defaced coins belong to the period

*These numbers refer to the list of Literature at the end of the paper.

before the arrival of the Portuguese. Their average size is 21mm = $\frac{13}{16}$ in., and their weight 2.5 grammes. It is noteworthy that the collection does not contain any of the well-known perforated tin coins which are still current in Trengganu and Kelantan.

The coins which have been partly or wholly deciphered are:—

(1) a coin with the date 1173 in Arabic characters, ١١٧٣ which would correspond to the year 1757 A. D.

(2) two coins with the date 1174 ١١٧٤ i. e. 1758 A. D.

(3) two coins with the inscription on the obverse

سلطان i. e. Sultânu

العادل i. e. 'l-'âdil (=the just)

on the reverse

احمد بن i. e. Ahmad Bin

محمود i. e. Mahmûd

In one of these two coins, this inscription is delicate, but exceedingly sharp and clearly defined.

(4) a coin with the inscription on the one side

خان i. e. Khan

محمود i. e. Mahmûd

The letters on the other side are too much worn to be deciphered.

I am indebted to Captain R. P. Jackson, S. C., 13th Madras Infantry, for having kindly identified these six coins for me.

(5). There is an exceedingly well preserved coin, with one side quite smooth, but bearing on the other side the inscription

ملك i. e. maliku

العادل i. e. 'l-'âdil

which means 'The just king.' Its size is 24mm = $\frac{15}{16}$ in. and its weight 3.3 grammes (See pl. I, fig. 5). Mr. R. J. Wilkinson kindly identified this coin for me, and I subsequently found it figured and described by Netscher and Van der Chijs (*13*,) p. 179, pl. XXVI, fig. 245, and by Millies (*12*,) p. 148, pl. XXIII, fig. 250. The specimen described by the former two authors has also one side entirely smooth, and they state that the title maliku 'l-'âdil is used by several rulers of Western Borneo. According to them the coin would have come from Sambas or Mampawa in West Borneo and date from the year 1822. Millies, however, refers the coin to Trengganu.*

(6). The coin figured on pl. II, fig. 2, seems to bear only a portion of the inscription maliku 'l-'âdil on the one side, whilst the characters on the other side are too indistinct to be deciphered.

Some of these tin coins may possibly have come from Sumatra. Marsden (*9*), p. 401, speaks of tin coins current in Acheen, and Netscher and Van der Chijs (*13*), p. 162, too describe such coins from Acheen, as well as from Palembang, Jambi and the neighbouring island of Banka, but I have not been able to identify any fo the Malacca coins with them.

The collection also contains a few Chinese coins, cash, which, however, are too much corroded to be identified.

II. THE EUROPEAN COINS.

1. The Portuguese Coins.

The European coins found at Malacca are Portuguese, Dutch and English, and, as I stated before, their dates embrace the whole period of the occupation of that place by these three nations.

*Since writing the above I have seen a paper by Lt. Col. Gerini, 'A Malay Coin,' Journal, Royal Asiatic Society, April 1903, pp. 339-343, in which certain small gold coins, found in Jaring, near Patani, are described. Their obverse is 'an imitation of a Southern Indian fanam bearing the figure of a maneless lion,' whilst their reverse bears the inscription العادل, reminding thus strongly of the tin coins described above. Dr. Codrington is of opinion that those gold coins had come from Acheen.

Malacca was taken by the Portuguese under Albuquerque in 1511 and held by them until 1641. The kings of Portugal during that period were:—

Emmanuel, 1495—1521
John III, 1521—1557
Sebastian, 1557—1578

and four others to whom it will not be necessary to refer in this paper. From 1641 to 1795 the Dutch held possession of it, from 1795 to 1818 the English, from 1818 to 1824 the Dutch again, and since then the English.

The coins in the collection which date from the time of the first Dutch occupation are nearly all well known, but it is otherwise with a large number of tin coins struck by the Portuguese in Malacca itself; in fact as I said before, it seems doubtful whether any more of these coins exist at the present day. However, the record of the first mint established by Albuquerque in Malacca, as given in his "Commentaries," and quoted below, leaves no doubt as to their identity.

This mint was the only one ever established in Malacca by Europeans. This was in 1511, immediately after the conquest of the place. In the previous year, 1510, Albuquerque had conquered Goa, and had established a mint there, and as the circumstances under which those two mints were founded were very similar, and since, as will be shown below, the Malacca coins were struck after the same pattern as those in Goa, although not of the same metals, it may be well first to shortly narrate the history of the founding of the mint in Goa.

Soon after Goa had been taken in 1510 the principal Moors and Hindus of the country went to Albuquerque and told him how the trade of the people suffered because there was no proper currency, begging him to coin some money or at least to permit the coinage of the Cabaio, the former ruler, to pass current, which he had forbidden. Albuquerque thereupon called a meeting of the goldsmiths, some Portuguese experts, and the native merchants, and discussed the matter, after which he gave orders for the coinage of money in gold, silver and copper, and on the one side they were to stamp a cross of the order of Christ, and on the other a sphere,—the device of the King D. Manuel. And when the money was ready (March 12th,

1510), Albuquerque "gave the word to take the royal flag, and the trumpets and kettle drums, and assemble all the men in the fleet, and ordered Tristao Déga to go and proclaim it; and he went with all this company of people all round the city, and at each proclamation that was made they scattered quantities of the new money over the heads of the crowds, which were great, and they went on proceeding in this manner round the city." (Vol. II, p. 131).

When a few months afterwards Goa had been retaken by the Moors, and Albuquerque had reconquered it, he established a new mint at Goa (Vol. III, p. 41).

Albuquerque arrived before Malacca in the middle of June 1511, made the first attack on July 25th, conquered it in August, and then took speedy measures for restoring order in the place, Ninachatu, a rich Hindu merchant, being of the greatest service to him in this matter. Ninachatu and some of the "Governors of the land" soon approached Albuquerque and told him what inconvenience the people suffered from the want of a currency, and begged he would give orders for some system of coinage. Albuquerque thereupon called together the merchants, governors, and principal men of the city, and arranged with them that gold, silver, and pewter coins should be struck, substituting thus pewter for the copper coins of Goa and utilizing the natural wealth of tin in the Malay Peninsula. We saw above that the native coinage before the arrival of the Portuguese had been pewter, just as now-a-days coins of that metal are current in Trengganu and Kelantan.

The gold coin, called *Catholico*, should weigh a quarter of a tundia which, amongst the Portuguese, was worth a thousand reis. The silver coins, called *Malaqueses*, i. e. Malacca pieces, should have the same value of a quarter tundia. The pewter coins were to be of three different demoninations, viz:

1. *dinheiro* (i. e. money), the smallest coin, equal to two of the previously existing caixes of the ruler of Malacca, bearing the sphere of the King D. Manuel,
2. *soldo*, equal to ten dinheiros,
3. *bastardo*, equal to ten soldos.

A mint was immediately established, and orders were given that under pain of death the old coinage of the King of Malacca

should be delivered there to be reminted. When this had been done, and sufficient money had been coined, Albuquerque fixed a day for the proclamation of the new currency, and the principal men of the people met Albuquerque with the Captains, Fidalgos and Cavaliers of the fleet in the fortress to form a procession through the town. The account given of this procession and proclamation is so interesting and picturesque, that I give it literally:

"There went first, in front of all the people, one of the principal Governors of the City mounted upon an elephant with his castle caparisoned with silk, and carrying in his hands a flag of the arms of the King of Portugal upon a long spear, and behind him went all the people on foot on one side and the other, as it were in procession; and in the midst of these people there went a Moor mounted upon another elephant, likewise caparisoned with silk, making the proclamation; and behind this one came the trumpets; and after them the Governors of the City, and all the Merchants, and principal men thereof; and at the rear of this throng there went Antonio de Sousa the son of Joao de Sousa of Santarem, and the son of Ninachatu, both together upon a large elephant, which had been kept for the King's own use, with his castle caparisoned with brocaded cloths, and they carried with them a large quantity of gold, silver, and copper * coin, which they kept on throwing out over the heads of all the people at each publication of the proclamation which the Moor made. The crowd was so great that the streets could scarcely contain it, and with many songs and blowing of horns, according to the native custom, the people gave great praise to Afonso Dalboquerque for giving orders for this distribution of money by the advice and in accordance with the opinions of their natives." (Vol. III, p. 141). Accounts of this first mint in Malacca are also given by Danvers (*5*), Vol. I, p. 230, and Stephens (*15*), p. 162.

Besides these two mints at Goa and Malacca, others were established by the Portuguese in Ceylon, Cochin, Diu, Bassein, Damao and Chaul. The following are the mint marks of six of

* This is probably an error: no copper coins of Malacca are previously mentioned. Probably pewter coins are meant.

these towns according to Da Cunha (*4*), part 1, p. 273 ; part 3 p. 202 ; part 4, p. 21.

G or G—A	... ...	Goa
M or M—A	... ...	Malacca
C—LO	... ...	Ceylon
D	... ...	Damao
D or D—O	... ...	Diu
B	... ...	Bassein

Finally the letter A which is found on some coins, is supposed to stand for 'Asia' (see Da Cunha, part 1, p. 271), but 'Albuquerque' has also been suggested.

Da Cunha, the first authority on this subject, alludes to the many difficulties which the study of the coins issued by these mints presents, he states that the coins were issued by the viceroys or even by the officers of the mint in the most capricious fashion, that they frequently bore effigies and legends which had no connection whatever with the reigning monarchs of the periods when they were issued, that some of them were struck years after the kings, whose busts they bore, had ceased to live (*4*, part I, p. 267). Da Cunha continues : "But these difficulties are increased tenfold by an absolute want of examples of the early periods of the Portuguese rule in India, their place being but inefficiently supplied by some written official reports and private memoirs. The coins of the seventeenth and eighteenth centuries are not only scarce, but even the written documents relating to them are rare or deficient." To Valentyn (*16*) they seem to have been entirely unknown. Millies (*12*), p. 140, says : "Un des monuments même de la victoire du grand Alfonso d' Albuquerque, la monnaie qu'il fit frapper à Malaka, a tellement disparu, que nous n'avons nullepart pu en decouvrir un exemplaire." Birch (*2*), in a foot note to Albuquerque's 'Commentaries,' Vol. II, p. 130, refers for descriptions of the earliest Portuguese coins to the works of De Faria (*6*) and Fernandes (*8*) and states that "the coins themselves are so rare that they may almost be described as no longer extant," and that those writers had not figured any of them. I have not been able to see the works of De Faria and Fernandes, but I am glad to say that the collection unearthed in Malacca does contain some of those earliest

coins, in fact some of them may be the identical specimens which Albuquerque threw out over the heads of the admiring crowd during his procession and the proclamation of the new coinage ni Malacca in 1511.

The oldest specimens are three coins in excellent condition belonging to the reign of King Emmanuel who was reigning when Malacca was captured. Their diameter is 30 mm.= $1\frac{3}{16}$ in., their weight 10.3 to 10.8 grammes, and they are probably bastardos. They bear on the obverse the Portuguese coat-of-arms, and around it the inscription:

EWANVEL: R: P: ET: A: DOVINE.

The second and fourth letters of the first word are inverted, and the last word, consisting of five or six letters, is less distinct than the rest. It might stand for DOMINE. The meaning of the other letters is of course 'Emanuel Rex Portugaliæ et Algarbiorum. The Algarves were first conquered by the Portuguese about 1188, and their name is still mentioned on the coins of the present day. The reverse of the coin bears the sphere, the "device of the King D. Manuel," like the coins struck at Goa. The device of the sphere, by the way, is used as a symbol of the glorious world-wide conquests of Portugal (see pl. I, figs. 2 and 2ª).

Albuquerque died off Goa on Dec. 16th 1515, and King Emmanuel in 1521. From the reign of the next king, John III, 1521-1557, between fifty and sixty coins are in the collection. The first kind, probably the Soldo (size 24mm. = $\frac{15}{16}$ in; weight 3.2 to 3.9 grammes), is of a very clear stamp, bearing on the obverse a cross, and around it the inscription

IOA: III: POR: ET: AL: R.,

i. e. Ioannes III Portugaliæ et Algarbiorum Rex, on the reverse the usual sphere. This tin coin therefore tallies exactly with the description of the gold, silver and copper coins struck at Goa, which bore on the one side "a cross of the Order of Christ, on the other a sphere—the device of the King D. Manuel." Of this coin there are only three specimens (pl. II, figs. 9 and 9ª)

Another kind, of which there are fifteen specimens, resembles this last in all details except that it is of a much ruder make and that the cross is slightly different: thus

Of a smaller size of this coin, possibly the Dinheiros, there are about forty specimens, some in excellent condition. Size 19mm = $\frac{3}{4}$ in; weight 2 to 2.3 grammes. The obverse bears around the cross the inscription

IOA: III: POR: ET: AL.

The reverse has the sphere (pl. II, figs. 10 and 10ª).

There are some coins which on the obverse round a coat-of-arms merely bear the inscription.

IOANNES. R. P. ET. AL. D. G.,

i. e. Ioannes Rex Portugaliæ et Algarbiorum Dei Gratia, and on the reverse the sphere. Although not clearly assigned to the reign of John III, still there is no reasonable doubt that they too belong to his time, and not to that of John IV, 1640-1656, during the second year of whose reign Malacca was lost to the Portuguese, nor to the time of John V, 1706-1750. There are about twenty specimens of it, but most of them in a very indifferent condition. Size 24 mm. = $\frac{15}{16}$ in; weight 6.3 to 6.4 grammes. (pl. II, figs. 8 and 8ª).

A smaller coin, of which there are two specimens, has on the obverse a cross, with the letters I S M A in the four angles of the cross, and on the reverse again the sphere. These letters probably stand for 'Ioannes, Malacca,' shewing that the coin was struck at Malacca during the reign of a King Ioannes, probably again John III. The cross is very like the cross on certain coins figured by Da Cunha (part 1, pl. I, figs 3, 4 and 7) from the mints of Goa and Diu and belonging apparently to the eighteenth century. Size 17.5 mm. = $\frac{11}{16}$ in; weight 3.8 to 3.9 grammes (pl. II, figs. 13 and 13ª).

Belonging probably to the reign of the next king, Sebastian, 1557-1578, there are six specimens of a large coin which has on the reverse the two letters S. B. with three crossed arrows between them, and on the reverse the coat-of-arms. The S. probably stands for 'Sebastian', and the letter B. may stand either for

for 'Bassein,' one of the mint towns, or for 'Bastardo,' the name of the largest tin coin. The arrows are symbolic of the martyrdom of St. Sebastian after whom the king was called. The size of the coin is 30 mm. = $1\frac{3}{16}$ in; weight 11.3 to 11.9 grammes (pl. I, figs. 4 and 4ª).

Another coin, which very probably also belongs to this reign, bears on the obverse the letters B and A, with three crossed arrows between them, and on the reverse the sphere. The coin is too small for the letter B to stand for 'Bastardo,' and it is probably the mint mark of Bassein, whilst the letter A may stand either for 'Asia' or 'Albuquerque' (see above p. 190). The three crossed arrows show that the coin was struck during the reign of Sebastian, like the previous coin, and the two dots above them probably indicate its value in dinheiros. Eight specimens were found: size 17 mm. = $\frac{11}{16}$ in; weight 3.5 to 3.7 grammes (pl. II, figs. 12 and 12ª).

The coin pictured on pl. I, fig. 1, of which there is only one specimen, was probably struck at Goa, as its obverse bears a device very like the wheel, the symbol of the martyrdom of St. Catherine, the patron saint of Goa. This wheel is often found on coins struck at Goa, as it commemorates the conquest of Goa by the Portuguese on St. Catherine's Day, November 25th, 1510. Its reverse is entirely smooth. Size 27 mm. = $1\frac{1}{16}$ in.; weight 8.9 grammes.

A small coin, represented by five specimens, shows on the obverse a coat-of-arms, and on the reverse a ship, but no inscription whatever. Size 18 mm. = $\frac{3}{4}$ in.; weight 2.2 to 2.4 grammes (pl. I, figs 6 and 6ª).

A considerably larger coin shews on the obverse the coat-of-arms, and on the reverse the sphere, but has no inscription either. There are five specimens of it. Size 28 mm. = $1\frac{1}{8}$ in.; weight 10 to 11.2 grammes (pl. I, figs. 3 and 3ª).

Finally there is a coin represented by only one specimen shewing on the obverse a small coat-of-arms surrounded by large and deeply impressed Roman letters, and on the reverse the sphere. Notwithstanding that the letters are deeply impressed and only little worn, they are so very rough, that my efforts to decipher them have not been successful. Size 24 mm. = $\frac{15}{16}$ in; weight 3.7 grammes (pl. II, fig. 7).

2. The Dutch, French and English Coins.

The Dutch during their possession of Malacca (1641-1795, and 1818-1824) never minted any coins especially for that place, but naturally used the coinage current in Java. That island has changed its rulers several times since the end of the sixteenth century, viz :

1594-1602 :	Compagnie van Verre te Amsterdam.
1597-1602 :	Compagnie van Verre te Middleburg.
1602-1799 :	Vereenigde Oost-Indische Compagnie
1800-1807 :	Batavian Republic.
1807-1811 :	French Government.
1811-1816 :	British Government.
1816 :	Dutch Government.

Coins belonging to four of these epochs were discovered at Malacca.

The two Companies van Verre seem to have issued silver coins only, but none are in the collection.

The Dutch East India Company issued gold, silver and copper coins. The first copper coins were minted in 1644, but in the Malacca collection which contains no gold or silver coins, the earliest copper coins date from 1729. From the fact that the earliest copper coin figured by Netscher and Chijs (*13*) dates from 1726 we may conclude that still earlier ones are rare in numismatic collections.

The Batavian Republic issued gold, silver and copper coins, but the collection does not contain any. The Raffles Museum, however, possesses a copper coin of that period. The obverse shows the Dutch coat-of-arms consisting of a crowned shield enclosing a lion rampart, with the figures 5 and $\frac{1}{16}$ to the right and left of the shield respectively. The reverse bears the inscription INDIÆ BATAV. 1802.

The French Government issued silver and copper coins, and two of the latter were found at Malacca.

The British Government issued gold, silver, copper and lead coins during its occupation of Java, but the Malacca collection contained none of them. The Raffles Museum, however, possesses silver Rupees of the years 1812 and 1816, half Rupees of 1813, copper Stuivers of 1814, half Stuivers of all the years

1811 to 1815, copper Duits of the years 1811 to 1813 and lead Duits of 1814.

The Dutch Government of Java has so far issued no gold coins. The first silver coins, Guilders, seem to have been struck in 1821, the first copper coins in 1817 or 1818. The Malacca collection contains four copper coins.

In addition to coins current in Java also some of the well-known tokens issued by British merchants and traders in Sumatra were found, further some coins struck by the British East India Company for Penang, and finally a coin from India and one from Holland.

(*a*). *Coins of the Dutch East India Company* (*1602-1799.*)

Most of the coins issued by this Company bear the monogram VOC, formed of the letters V. O. C., standing for 'Vereenigde Oost-Indische Compagnie,' i. e. United East India Company.

1. Copper. One Duit.
   Obv. Coat-of-arms consisting of a crowned shield containing two lions passant.
   Rev. VOC 1729.
   See Netscher and Chijs, p. 103. No. 21; pl. IV, No. 21[c]

2. Copper. One Duit.
   Obv. Coat-of-arms consisting of a crowned shield containing one lion rampant.
   Rev. VOC 1730.
   Except for date similar to Netscher and Chijs, pl. III fig. 21[a].

3. Copper. One Duit.
   Dated 1731. Otherwise similar to No. 1.

4. Copper. One Duit.
   Obv. Coat-of-arms with two lions rampant. Around it the legend 'SP NOS IN DEO' (i. e. Spes nostra in Deo).
   Rev. VOC 1732.
   Except for date similar to Netscher and Chijs, pl. IV, No. 21[d].

5. Copper. One Duit.
   Obv. Coat-of-arms with two lions rampant. Around it the legend 'SPES NOSTRA IN DEO' (written in full).
   Rev. ℧℄ (Date effaced).
6. Copper. One Duit.
   Obv. Coat-of- arms with one lion rampant; no legend.
   Rev. ℧℄ 1735.
   Except for date similar to Netscher and Chijs, pl. IV, fig. 22[a].
7. Copper. One Duit.
   Date 1737. Otherwise identical with No. 6.
8. Copper. One half Duit.
   Obv. Coat-of-arms consisting of a crowned shield without lions. The shield is divided by a diagonal line, a bende, the upper and sinister portion of the shield being argent, the lower and dexter portion gule.
   Rev. ℧℄ 1753.
   See Netscher and Chijs, pl. IV, fig. 22[e].
9. Copper. One half Duit.
   Date 1754. Otherwise identical with No. 8.
10. Copper. One Duit.
    Obv. Coat-of-arms consisting of a shield similar to that of Nos. 8 and 9, but supported on the left and right by two rampant lions.
    Rev. ℧℄ 1786.
    Except for date similar to Netscher and Chijs, pl. IV, fig. 21[e].
11. Copper. One Duit.
    Obv. Coat-of-arms consisting of a crowned shield, the lower half of which contains three horizontal wavy lines, the upper half a demi-lion.
    Rev. ℧℄ 1786.
    Except for date similar to Netscher and Chijs, pl. IV, fig. 22[b].
12. Copper. One Duit.
    Dated 1790. Otherwise similar to No. 10.

13. Copper. Two Duits.
Dated 1790. About twice as large as No. 12, but otherwise similar to it.
14. Copper. One Duit.
Obv. Coat-of-arms, consisting of a crowned shield containing two lions passant.
Rev. VOC 1792.
Except for date similar to Netscher and Chijs, pl. IV, fig. 22[c].

(*b*). *Coins of Java under French Rule (1807-1811.)*

1. Copper. One Duit.
Obv. 'JAVA, 1810'. Below this the letter 'Z.'
Rev. A monogram of the two letters 'L. N.', standing for Louis Napoleon.
See Netscher and Chijs, p. 112, No. 60; pl. VII, fig. 60[a].
2. Copper. Two Duits.
Obv. 'JAVA'. Date effaced.
Rev. 'L. N.'

(*c*). *Coins of Java under Dutch or British Rule?*

The Malacca collection contains a copper coin, probably one Duit, of the following description:

Obverse: Coat-of-arms consisting of a crowned shield enclosing a lion rampant, with the figures '5' and '$\frac{1}{16}$' to the right and left of the shield respectively.

Reverse: the legend INDIÆ BATAV. 1816.

In 1816 Java was handed back by the British to the Dutch, and as the coin bears a coat-of-arms used by the Dutch East India Company throughout the eighteenth century, there is no reasonable doubt that the coin is of Dutch, not British origin. Coins identical with it, except for the date, were issued by the Batavian Republic previous to the English occupation of Java, and by the Dutch Government after the English occupation, and the Raffles Museum contains such coins of the years 1802, 1818, 1819, 1821 and 1824. But the Museum also contains a coin of 1815, that is a coin struck in Batavia with the Dutch coat-of-arms during the time of the English rule. Therefore it is just

possible that the above coin of 1816, found at Malacca, may also have been struck under English rule. I cannot offer any explanation of this.

A coin of this kind, but of the year 1802, is figured by Netscher and Chijs, pl. VI, fig. 39. The figures '5' and '$\frac{1}{16}$' to the right and left of the shield respectively are somewhat mysterious. Netscher and Chijs (p. 108) say that they are not able to offer any explanation of their meaning, nor am I in a position to do so.

(*d*). *Coins of Java under Dutch Rule* (*from 1816*).

1. Copper. $\frac{1}{8}$ Stuiver.
   Obv. A coat-of-arms consisting of a crowned shield enclosing a lion rampant, with the figure $\frac{1}{8}$ to the right and the letter S to the left of the shield.
   Rev. NEDERL. INDIE 1823.
   See Netscher and Chijs, pl. IX, fig. 85.
2. Copper. $\frac{1}{4}$ Stuiver.
   Date 1826. Except for size, date and the figure $\frac{1}{4}$ instead of $\frac{1}{8}$, similar to No. 1.
3. Copper. One Cent.
   Obv. The usual coat-of-arms enclosing a lion rampant with '1' and 'Ct' to the right and left of the shield respectively.
   Rev. NEDERL. INDIE 1838.
4. Copper. One Cent.
   Date 1856. Identical with the currency of the present day.

(*e*). *Tokens of the British East-India Company of Sumatra.*

1. Copper. One Keping.
   Obv. The Company's coat-of-arms, and around, in Roman characters, the legend 'Island of Sumatra, 1804.'
   Rev. The legend, in Malay characters, 'Satu Keping, 1219.'
   See Rodgers (*14*), Vol. II, pl. VIII, No. 12081; Ellis (*7*) p. 9, No. 1; Atkins (*1*), p. 204, No. 24.

2. Copper. One Keping.
   Obv. A Bantam Cock, with the legend, in Malay characters, 'Tanah Malayu' (i. e. the Land of the Malays).
   Rev. In Malay characters: 'Satu keping, 1247,' (i. e. 1831 A.D.)
   See Rodgers (*14*), Vol. II, pl. VIII, No. 12083; Millies (*11*), pl. II, fig. 23.
3. Copper. One Keping.
   Obv. As in No. 2.
   Rev. A star of sixteen points, with the legend, in Bugis, 'The Land of the Bugis, One Keping, 1250' (i. e. 1834 A. D.)
   See Netscher and Chijs. p. 188, No. 254; pl. XXVII, fig. 254.

(*f*). *Coins of the British East India Company struck for Penang.*

1. Copper. Three Kepings.
   Obv. A heart-shaped shield diagonally divided into four sections with the letters V. E. I. C. respectively (i. e. United East India Company). The shield is surmounted by the figure '4'. Below the date 1798.
   Rev. 'Tiga Keping, 1213', in Malay characters.
   See Netscher and Chijs, p. 123, No. 100; pl. X, fig. 100b.
2. Copper. Four Kepings.
   Obv. The Company's coat-of-arms with the legend 'East India Company' in Roman letters around it. Below, the date 1804.
   Rev. 'Ampat Keping, 1219', in Malay.
   See Netscher and Chijs, p. 123, No. 99; pl. X, fig. 99.
3. Copper. Two Kepings.
   Obv. Smaller than, but otherwise identical with, No. 2.
   Rev. 'Dua Keping, 1219,' in Malay.
   See Millies (*11*), p. 93, No. 14; pl. I, fig. 14.

III. OTHER COINS.

There are two more coins which belong to none of the above sections.

1. A copper coin of the East India Company, struck in the name of Shah Alam II. The obverse shows an inscription in Arab, the reverse in Bengali, Malay and Hindostani. See Rodgers, Vol. II, p. 124, No. 12138; pl. VII, No. 12138.
2. Copper. Two Stuivers.

This is the only coin of European origin found in the collection, coming from Zeeland in Holland.

Obv. The Dutch coat-of-arms consisting of a crowned shield. The lower half of the shield has three horizontal wavy lines, the upper half a demi-lion, therefore exactly similar to the coat-of-arms of the coin No. 11 of the Dutch East India Company described above (p. 196). The figure 2 to the right and the letter S to the left of the shield indicate its value, two Stuivers.

Rev. The legend

ZEE
LAN
DIA
1730

LITERATURE.

1. *Atkins, James*, Coins and Tokens of the Possessions and Colonies of the British Empire. London, 1889.
2. *Birch, W. de Gray*, The Commentaries of the Great Afonso Dalboquerque, Second Viceroy of India. 4 Vols. London (Hakluyt Society), 1875-1884.
3. *Crawford, John*, A Descriptive Dictionary of the Indian Islands and Adjacent Countries. London, 1856.
4. *Da Cunha, J. Gerson*, Contributions to the Study of Indo-Portuguese Numismatics. Journal, Bombay Branch, R. Asiatic Society. Part 1, Vol. XIV, pp. 267—273, 1 pl.; part 2, Vol. XIV, pp. 402-417; part 3, Vol. XV, pp. 169-202, 1 pl.; part 4, Vol. XVI, pp. 17—73, 4 pls, (1880-1883).
5. *Danvers, F. C.*, The Portuguese in India. 2 Vols. London, 1894.
6. *De Faria, Manoel Severim*, Noticias de Portugal. Lisbon, 1791.
7. *Ellis, Lt. Col. H. Leslie*, British Copper Tokens of the Straits Settlements and Malayan Archipelago. Numismatic Chronicle, ser. 3., Vol. XV, pp. 135-153, pl. VI.
8. *Fernandes, M. B. L.*, (Title of Work ?), Mem. Acad. Real das Sciencias de Lisboa, 1856.
9. *Marsden, W.*, The History of Sumatra. 3rd ed., London, 1811.
10. ———Numismata Orientalia Illustrata. London, 1869.
11. *Millies, H. C.*, De Munten der Engelschen voor den Oost-Indischen Archipel. Amsterdam, 1852.
12. ———Recherches sur les Monnaies des Indigènes de l'Archipel Indien et de la Péninsule Malaie. La Haye, 1871.
13. *Netscher, E., and J. A. van der Chijs*, De Munten van Nederlandsch Indie. Batavia, 1860 (?)
14. *Rodgers, Chas. J.*, Catalogue of the Coins of the Indian Museum. 4 parts. Calcutta, 1893-96.
15. *Stephens, H. Morse*, Albuquerque (R. I.). Oxford, 1892.
16. *Valentyn, François*, Oud en Niew Oost-Indien. 5 Vols. Dordrecht and Amsterdam, 1724.

References to the Illustrations.

Plate I.

Fig. 1	see page	193.
Figs. 2 and 2[a]	,,	191.
Figs. 3 and 3[a]	,,	193.
Figs. 4 and 4[a]	,,	193.
Fig. 5	,,	186.
Figs. 6 and 6[a]	,,	193.

Plate II.

Fig. 7	see page	193.
Figs.8 and 8[a]	,,	192.
Figs. 9 and 9[a]	,,	191.
Figs. 10 and 10[a]	,,	192.
Figs. 11	,,	186.
Figs. 12 and 12[a]	,,	193.
Figs. 13 and 13[a]	,,	192.

Fig, 1.

Fig 2.

Fig, 2a.

Fig, 3.

Fig, 3a.

Fig, 4.

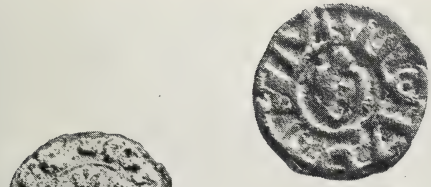
Fig, 4a.

Fig, 5.

Fig, 6.

Fig, 6a.

Tin Coins from Malacca.



Fig, 7.

Fig, 8.

Fig, 8a.

Fig, 9.

Fig, 9a.

Fig, 10.

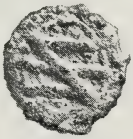
Fig, 10a.

Fig, 11.

Fig, 12.

Fig, 12a.

Fig, 13.



Fig, 13a.

Tin Coins from Malacca.

Short Notes.

A Swarm of Butterflies in Sarawak.

On January 12th ult. a great flight of butterflies was observed at Kuching, Sarawak, at 1.30 p.m. All the individuals of the swarm belonged to the well-known species, *Cirrochroa bajadeta*, Moore (syn. *ravana*, Moore); in the male the wings on the upper side are bright chestnut in colour with the outer margins of the fore wings broadly, of the hind wings narrowly, fuscous, the under side is pale brown with darker markings and an oblique pale fascia; the female differs in small details only. A bright westerly wind was blowing at the time and the butterflies flew before it all over the town of Kuching towards Mount Matang in a continuous flood for about 15 minutes whilst stragglers followed up in ever-decreasing numbers for the rest of the day. The colour of the insects, their prodigious numbers and their weak and wavering flight produced an effect that irresistibly reminded the beholder of a heavy shower of falling leaves on a gusty autumn day in England. The swarm or some part of it arrived at Mt. Matang towards evening and streamed up to the summit. At Sadong the same phenomenon was witnessed at the same time on the same day as in Kuching but whether this was a separate swarm or merely one of enormous size sweeping over the whole area between Sadong and Kuching it is impossible to say as I can get no records from intermediate places. On the 13th between 1.30 and 2 p.m. another flighting was noticed in Kuching, but the number were infinitesimal compared to those flying on the 12th, and they did not attract the attention of many observers. Of 18 specimens captured on the 12th, 13 proved on examination to be males, whilst only 5 were females; at the present time of writing—a month after the swarm was observed—this species is quite the most common met with in and around Kuching, but now nearly all the specimens captured are females. The rainfall of the N. E. monsoon months has so far (October—January) been below the average (39.45 inches as

against the average 75.17 inches) and to this comparative drought perhaps may be indirectly attributed the abnormal numbers of this butterfly—*Cirrochroa bajadeta*. That the monsoon has been an exceptionally favourable one for insects is shewn also by the following occurrences:—(1) The number of swarms of social wasps and bees has been greater than usual during the past 3 months. (2) Captain A. Balser of the s.s. "Rajah of Sarawak" reports that on the 20th January ult., a swarm of dragon flies came aboard his ship when about 50 miles west of the island of St. Pierre; the wind was very unsteady at the time; the insects appeared to be making their way North. (3) Mr. H. B. Crocker, officer-in-charge at Paku, Upper Sarawak, informs me that on January 27th ult., he noticed a swarm of some Pierine butterflies (species not identified, probably *Catopsilia crocale*, Cram.) flying in a solid phalanx some 20 fathoms long by 8 fathoms wide in a westerly direction.

R. Shelford.

Work on Sakais by Messrs. Skeat and Blagden.

In a letter from Mr. Blagden lately received he states that the important work on the wild tribes of the Malay peninsula by Mr. W. D. Skeat and himself will shortly be out. It is an attempt to combine in one work all that is of any permanent value in previous publications both books and periodicals, as well as Mr. Skeat's own independently collected matter collected during the Cambridge Exploring Expedition, in the Northern States of the Peninsula and in Selangor, Mr. Blagden's own notes, and the various information collected by Mr. D. F. A. Hervey, Hugh Clifford, Vaughan Stevens and others. The book which will be well illustrated will be found to be as complete as it is possible to make it, and should prove of the greatest interest to all Europeans in the Malay peninsula. It is unnecessary to point out that in many cases the language and customs of these most interesting tribes are gradually disappearing so that a good record of them is of the greatest importance, and the names of the authors are a guarantee of the excellence of the work.

H. N. R.

A Buddhist Votive Tablet.

Some years ago the late Mr. H. Vaughan Stevens discovered in Kĕdah in a cave, nine feet below the floor, a number of fragmentary clay tablets stamped with inscriptions. These he forwarded to the Singapore Museum, where they now are, accompanying them with a letter explaining where he had found them.

By the courtesy of the Curator I have been enabled to submit a photograph of the largest and best preserved of these tablets to Professor Kern of Leyden, who in reply to my request was good enough to examine it and writes as follows:— "After repeated attempts I have given up the hope of deciphering the whole. The writing is Nāgarī of the 10th century, approximately, and therefore the tablet is from *Northern* India. At the top I discern parts of the well known Buddhist formula:

ye dharmā hetu prbha, etc.,

The first line shows *hetuprabha;* the second *sām hetu-tathāga-;* the third *tesām . . ca (?) yo nirodha-*; the fourth . . *vādī manah sarve;* the fifth *sams Kārā.* Further I can distinguish some letters, but without being able to make out an intelligible context. Most probably the whole tablet is filled up with the common formula of the Buddhist creed."

The formula here referred to is clearly the one which occurs also in certain other inscriptions found in Kĕdah and Province Wellesley, which will be found in Indo-Chinese Essays, Series I, Vol. 1. These were dealt with, by Professor Kern, in Verslagen en Mededeelingen der Koninklijke Akademie van Wetenschappen, Afdeeling Letterkunde, 3de Reeks, Deel 1. He assigns them to the period 400 A. D. These however are in a *South* Indian form of alphabet (and from such form the existing Far Eastern alphabets are in the main derived), whereas the clay tablet now dealt with points to influences from *Northern* India.

Evidently, therefore, both Northern and Southern India have contributed something towards the civilization of the Malayan regions.

I take this opportunity of pointing out, as regards the date to which this Indian influence can be traced, the following few acts:—

(1) In the 2nd century, Ptolemy gives Indian place names to several of the islands of the Archipelago, notably Java, which he calls Iabadios i. e. Yava-dvipa "the island of Java" (or the island of millet," if that is what the name meant) as well as to certain ports on the coast of Indo-China and the Peninsula.

(2) Early in the 5th century, Fa-Hian going from Ceylon to Java, finds in the latter island "heretical Brahmans, but no Buddhism worth mentioning." He was a Buddhist pilgrim himself and stayed five months in Java and after spending some years in India, so he may be supposed to know what he was talking about.

(3) Late in the 7th century I. Tsing, another Chinese Buddhist, found Buddhism (of the Sanskrit-using variety) flourishing in South-eastern Sumatra.

The inscriptions found in the Peninsula, though few in number and of little intrinsic interest, supply further links in this chain of evidence, and negative Mr. Hugh Clifford's assertion (Encyclopædia Britannica supplement s. v. Malays) that the traces of Hindu influence do not extend to the Peninsula. They are only fainter there than in Java and Sumatra, not absent altogether.

Unquestionably Indian influence was by far the most potent of the forces which have led the Javanese and Malays to such civilization as they have attained. It has made a far deeper impression upon them than the Arab and European teaching by which it has been succeeded.

C. O. Blagden.

A new Balanophora from Tenimber Islands.

When Mr. H. O. Forbes visited the Tenimber islands in 1882, he obtained among his collections, specimens of a Balanophora which however perished in the disastrous conflagration by which the greater part of his collections were destroyed. No other person has since visited this group with a view of collecting botanical specimens though Orchid collectors have lately taken to exploring the spot usually for the sake of the beautiful *Dendrobium Phalaenopsis*. Mr. Micholitz during a recent visit came across the *Balanophora*, and brought a quantity of it preserved in Formaline which he has kindly given me, and I may here remark that this seems to be about the best way of preserving these fleshy plants. If preserved in ordinary spirit, not only does the spirit become black, though often changed, but the plants which are ordinarily red, yellow or white also become black. The specimens in formaline retain to a considerable extent the yellowish white color which they possessed in life.

B. Micholitzii, n. sp.

Rhizome rather small about $\frac{1}{2}$ inch through, rounded and shortly lobed, minutely irregularly pustulate. Stems two or three on a rhizome, 2 inches tall thick, leaves about 8, orbicular to orbicular ovate, apex rounded $\frac{1}{2}$ an inch long, $\frac{1}{2}$ to $\frac{3}{4}$ inch wide white. Capitulum ovoid globose 1 inch long yellowish bisexual.

Male flowers in two or three whorls at the base, pedicels $\frac{1}{6}$ inch long thick. Sepals 4 oblong fleshy, apices thickened incurved, shorter than the pedicel, reflexed, androecium thick, anther-capitulum rounded, anthers 4 horse-shoe shaped. Female portion broad globose rounded. Flowers obconic clavate, apex rounded tessellate, spadicels numerous nearly as long as the pistil, base and apex slender filiform centre swollen.

This plant is nearly allied to *B. Zollingeri* Fawcett, Trans. Linn. Soc. Ser. ii. Vol. ii. p. 234. Plate 34 figs 11-14 which was collected by Zollinger in the island Salayer, south of Celebes. It is however much larger in all its parts, and the female flowers are more club shaped with a longer stalk armed with large well developed spadicels.

H. N. Ridley.

On the supposed evil influence exercised by ghosts in the Malay Peninsula.

Some four years ago when I was engaged in certain prospecting operations in the highlands of Pahang on the borders of that State with Perak, I had occasion to make a somewhat lengthy stay at a place called Kampar on the Tué river, one of the tributaries of the Betok, in its turn a tributary of the Jelai, the principal feeder of the Pahang River. I selected this spot because it had already been cleared of large trees and had only recently been in occupation as a Sakai Settlement, from the remains of which, we reared our unpretentious little camp. The Sakais however strongly advised us to go elsewhere alleging that this place was haunted by elephant ghosts and that they had been the direct cause of a number of deaths among them, principally among their children, whose remains lie buried there. It is necessary to explain that at the back of this place, not fifty yards away, is to be seen one of those peculiar muddy pools which animals of all kinds frequent for their saline properties, this particular one being known as the Kubang Gajah Hantu (the mud pool of the ghostly elephants). These salt licks are also known as *genuts* in Malay. When the Sakais refer to this place it is usually with bated breath and a mysterious and awesome gesture. These men declared that almost nightly elephants are seen and heard breaking twigs and branches and wallowing in this mud pool, and yet in the morning, not a vestige of their spoor can be seen anywhere. Of this I am certain, the prints of deer and pigs were always plentiful and fresh, but no elephant could have been within miles of the place during my residence in that locality. My mandor's wife, an oldish person, who always followed her husband in his journeys doing the cooking for my followers, declared that the first night we slept there, she and all my men heard continued long drawn wails, like a long wee-ê-ê-ê which went on without intermission until almost daylight. This noise they said came from those Sakai children buried there.

This account is interesting from an ethnological standpoint in so far as it illustrates the beliefs and superstitions of a race of very primitive people. As for the number of children dying

at the time, this would only seem natural when it is remembered that an epidemic of measles was then and had been for some time after raging.

A. D. Machado.

Malay Witchcraft.

Towards the end of 1901 while I was in charge of a country district in Alor Gajah, complaints were made to me of a certain Pawang Musah who was said to bewitch children by means of a familiar spirit called a Polong. One man stated that one of his children had died from the effects and that another was affected. As his house was only about a mile from where I lived, I and the colonial surgeon from Malacca, who happened to be with me on one of his periodical visits decided to go and see the child. When we arrived at the house we found a large number of people in the house and lying at one end of the verandah, the child (a little girl of 7 or 8 years old) in a semi-unconscious state. The doctor examined it and found that it was in a high fever and evidently dying. While we were there the father sat down and spoke to the child. She opened her eyes and when asked by the father "who sent you here and who is your father" or words to that effect, she replied "Pawang Musah." This was taken by the bystanders to be the voice of the Polong speaking through the child. We were also told that the child had been asked who would be the next victim and had pointed out her older sister a girl of 18 or 19 years old. This girl was examined by the doctor and found to have nothing the matter with her. We assured her she had nothing to fear, and as far as I know she is still alive, at any rate she was alive in February 1902 when I left Malacca. The dying child was suffering from malarial fever, enlarged spleen and starvation and though we sent up stimulants they were of no avail and she died a very few hours after we left. Pawang Musah lived about 2 miles from were the child lived and had a bad reputation as a wizard. He originally came from the other side of Malacca about 30 miles away and had moved about from village to village everywhere getting the credit for the deaths of child-

ren being driven out. I have very little doubt that he traded on the reputation as the people were quite willing to give him anything he asked for through fear that he would otherwise bewitch their children. The explanation appears sufficiently obvious. If any person thought he had in any way offended the Pawang the next case of sickness in his house would in all probability be attributed to him, the illness then being considered supernatural no ordinary remedies would be tried and incantations alone would be used to drive out the evil spirit. The result to the patient is very easy to imagine and as he or she being familiar with the story of the Polong, it is not surprising that the answers given to the well known formulæ coincide with the suspicion of the relations especially when it is remembered that the patient is a young boy or girl in high fever.

H. Marriott.

Corrigenda in Mr. C. O. Blagden's paper "A Malayan Element in some of the Languages of Southern Indo-China, Journal No. 38, pp. 1-27

Page 1, line 4, *for* Khmet *read* Khmer.
,, 5, *for* hand *read* Land.
,, 2, ,, 11, *for* dua *read* dva.
,, 5, ,, 8 from bottom, *after* and *insert* the.
,, 6, ,, 5, *for* leureux *read* heureux.
,, 8, ,, 13, *for* sĕmbilon *read* sĕmbilan.
,, 3 from bottom, *for* of *read* cf.
,, 11, ,, 1, *for* tamov *read* lamov.
,, 16, *for* hagaton *read* hagatou.
,, 20, *for* dita *read* ditá.
,, 13, ,, 11. *after* rarely *end the bracket.*
for iu *read* in.
,, 3, *delete* van.
,, 4, *for* metoyam *read* metyoam.
,, 14, ,, 5 from bottom, *insert* a *before* Malayan.
,, 19, ,, 13 from bottom, *for* dewatan *read* dewătau.
,, 20, ,, 14, *for* chin chin *read* chinchin.
,, 15, *for* ainbau *read* ambau.
for ainbang *read* ambang.
,, 21, ,, 6, *for* being *read* bring.
,, 22, ,, 4, *for* Papuan *read* Melanesian.
,, 24, ,, 2, *for* southeast *read* south-east.
,, 2 from bottom, *for* ; everything *read* . Everything.
,, 25, ,, 3, *for* wards *read* words.
,, 27, ,, 6, *for* Himby *read* Himly.
,, 11, *for* Landen *read* Land- en.

PUBLICATIONS OF THE SOCIETY.

JOURNAL No. 1 to No. 39, Price to members, $1.00 each.
„ „ „ „ to non-members, $2.50 each.
ESSAYS RELATING TO INDO-CHINA, 4 Vols., Price $2.50 each.
THE HIKAYAT ABDULLAH.
THE WAI-SENG LOTTERY, by G. T. Hare, Esq.
RAJAH BUDIMAN. A Malay Folk Tale, by H. Clifford, Esq.
THE MAP OF the MALAY PENINSULA.

To members	$9.00 mounted.
„ non-members	13.00 „
„ members	7.00 unmounted.
„ non-members	11.00 „

1455

SMITHSONIAN INSTITUTION LIBRARIES
3 9088 01309 9643